

THE CONTRACT JOURNAL

INCORPORATING

THE BRITISH CONSTRUCTIONAL ENGINEER AND THE CONTRACTOR

No. 4,239 82nd YEAR

THURSDAY, SEPTEMBER 22, 1960

PRICE 2/-

HYDRASCOOP loads 5 cubic yards in 45 seconds

... yes, the Hydrascoop loads all-in aggregate into wagons easily at that rate—and a lot of other materials at equally impressive rates. How? By a big, 2 yard bucket (there's a variety of types to choose from, according to materials being handled) with well-applied power behind it. And only 70 h.p. is required to do these jobs! Above all, by the 360° traverse that cuts out "drive-in back-out" movements. The Hydrascoop has a 20 ft. level clean-up radius, will dig any angle of slope, and excavate 2 ft. below ground level. A 9 ft. 10 in. discharge height enables the largest wagons to be loaded.



BLAW KNOX

Design... thinks ahead—stays ahead



GET DOWN TO

WITH THE

Shawnee

“WARRIOR” DIGGER

Public Works Exhibition, November 14th—19th
STAND Nos. 47 & 16

THE JOB *quicker*



The Shawnee "Warrior" Digger gives you *real powerful, deep digging action to a depth of 11 ft. 3 ins . . . 180° angle digging . . . high loading to 8 ft. 10½ ins . . . and a long 17 ft. reach.* Contractors will welcome this versatile, speedy, easy to operate, more economical machine—a machine with the highest power-to-weight ratio built today. Contact us **NOW** for fuller details of the Shawnee "Warrior" Digger—the Digger that is available for all leading makes of standard Tractors.



L-O-N-G REACH

ALLIS-CHALMERS

HD 6G

**Reaches higher to discharge
the bucket than other
tractor shovels in its class**

Because of its long reach, the versatile 72-hp Allis-Chalmers HD-6G tractor shovel, weighing 21,000 lb, raises its 1½-cu-yd bucket to a greater height (9 feet) than other tractor shovels of similar weight and power. The material is discharged accurately over the sides of high vehicles, on stockpiles, or out of excavations, as desired.

In excavating, the HD-6G delivers 21,500 lb breakout force at the cutting edge to assure quick loading. As a complete unit it is distinguished for power, economy, ease of operation and strength of construction.

For complete information, consult the Allis-Chalmers Construction Machinery Distributor in your area, or write us.

ALLIS-CHALMERS INTERNATIONAL, Department CJ960, Milwaukee 1, U.S.A.

ALSO 3 LARGER MODELS

	HD 11G	HD 16G	HD 21G
Net Engine Hp (diesel):	111	150	225
Weight, pounds:	32,000	48,600	66,500
Bucket Capacities, cubic yards:	2¼	3	4

ALLIS-CHALMERS



BUILDERS OF MACHINERY SINCE 1847

BENFORD

a name familiar
to ALL on sites
both large
and small

DIESEL DUMPERS

Benford Dumpers are labour saving, all-purpose carriers designed for every day use by all and sundry on the Building Site and despite adverse ground conditions.

They are made in four sizes—15 cwt., 23 cwt., 30 cwt. and 35 cwt.—and are built to work with and take the full batch from concrete mixers ranging in size from 5/3½ to 21/14.

Normal standard equipment is a gravity tipping skip.

Alternatively they can be fitted with special Benford roll-over crane skips which the dumpers can pick up and put down without the driver leaving his seat.

All sizes of Benford Dumpers have the same proven characteristics, namely—a diesel engine for economy and improved performance, four wheels for rough road stability, a front axle drive for mechanical efficiency and rear wheel steering where the load is least.

For details send for list 6017—it's full of information.

REVERSING DRUM MIXERS

Made in two sizes 18/12 and 10/7, each with everything the Contractor has ever wanted in a closed drum mixer.

Built-in Scraper Shovel for quick, economical loading!

Built-in Batch Weigher that really works!

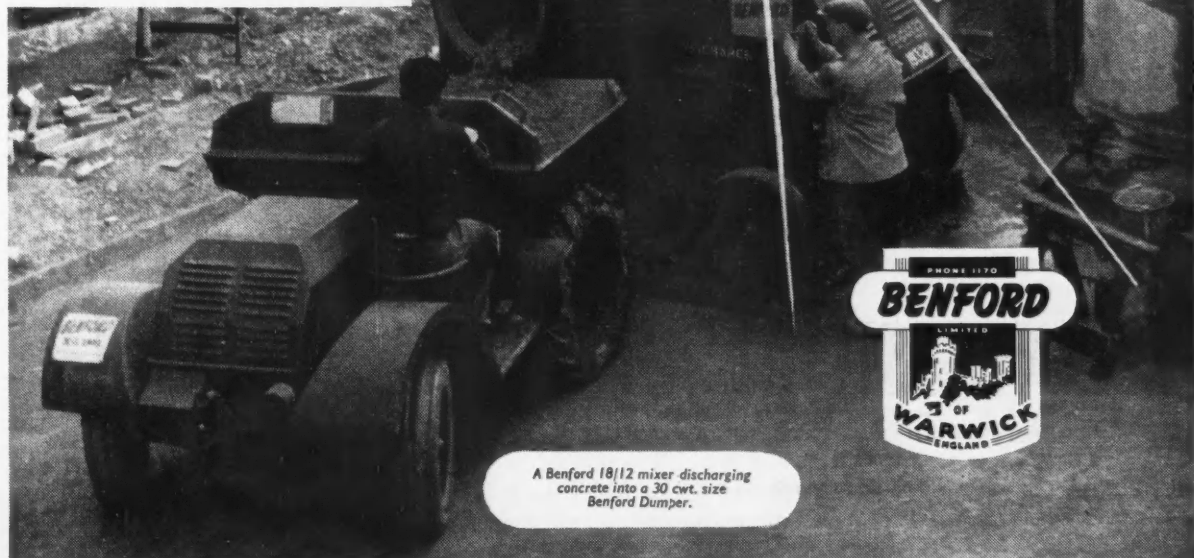
Aggregate Feed Apron to keep aggregates separate and guide Shovel to the right point every time!

Self clean non-clog drum that will mix wet or very dry concrete!

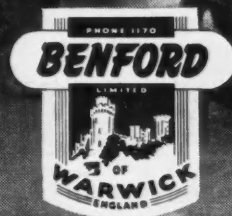
Accurate measuring water tank that can be relied on whether the quantity required is large or small.

Hydraulically lifted loader—no topshaft, no wire ropes, no clutches.

Send for list 6019 and full particulars—it's free and will be sent by return of post!



A Benford 18/12 mixer discharging concrete into a 30 cwt. size Benford Dumper.



YOU  ...cannot afford to overlook the

ALLAM **ROTARY FLOAT**

THE FLOAT WITH ALL THE ADVANTAGES, INCLUDING INTERCHANGEABLE DISC AND TROWEL ASSEMBLIES, POWER TAKE-OFF, etc.
NOT AVAILABLE ON ANY CONTEMPORARY MACHINE
And all British too!

**SUITABLE
FOR ALL
FLOORING CONTRACTS
AND
OVERSITES**




E · P · ALLAM & CO. LTD.

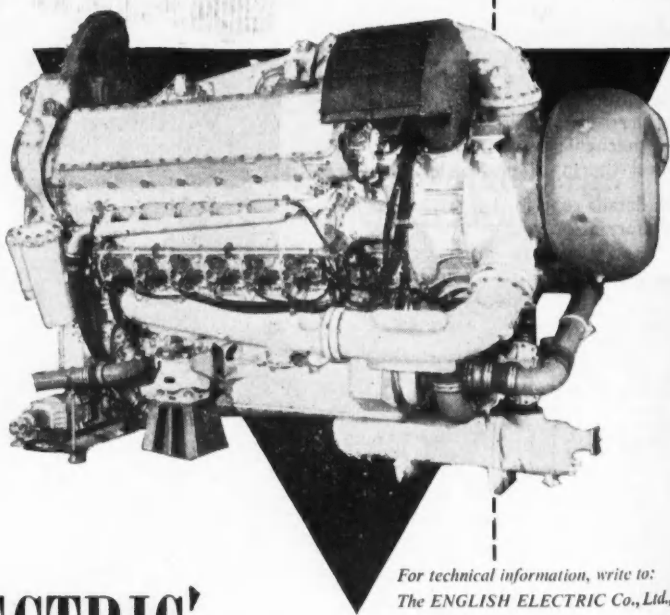
132-135 SLOANE STREET, S.W.1. TELEPHONE: SLOANE 9976 (5 lines)
SCOTLAND: 39 CAVENDISH STREET, GLASGOW, C.5 TELEPHONE: SOUTH 0186

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CONCRETE ENGINEERING SERVICES, York
Road Industrial Estate, Wetherby, Yorks.
JOHN ROULSTONE, LTD., Newcastle upon Tyne.
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MODERN PLANT SALES, LTD., Oldenburg, Worcs.

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NAPIER DELTIC diesel engines
now
available to
industry

Today Napier 'DELTIC' diesel engines, already so successful in the marine and traction fields, are available to industry for power generation, pumping, compressors and are particularly suitable as mobile and semi-mobile generating sets for mining, oil exploitations and civil engineering projects.

These low weight, compact prime movers with the unique triangular design, available from 860 to 2,200 h.p., give a much higher output for size and weight than any comparable engine.



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in association with: D. NAPIER AND SON LTD.

For technical information, write to:
The ENGLISH ELECTRIC Co., Ltd.,
Diesel Engine Division,
Brownsover Hall, Rugby.

THE ENGLISH ELECTRIC COMPANY LIMITED, ENGLISH ELECTRIC HOUSE, STRAND, LONDON, W.C.2
DE.100 WORKS: STAFFORD · PRESTON · RUGBY · BRADFORD · LIVERPOOL · ACCRINGTON

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MOBILE CRANES
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WHITLOCK

DINKUM DIGGER

MAJOR

ESSEX


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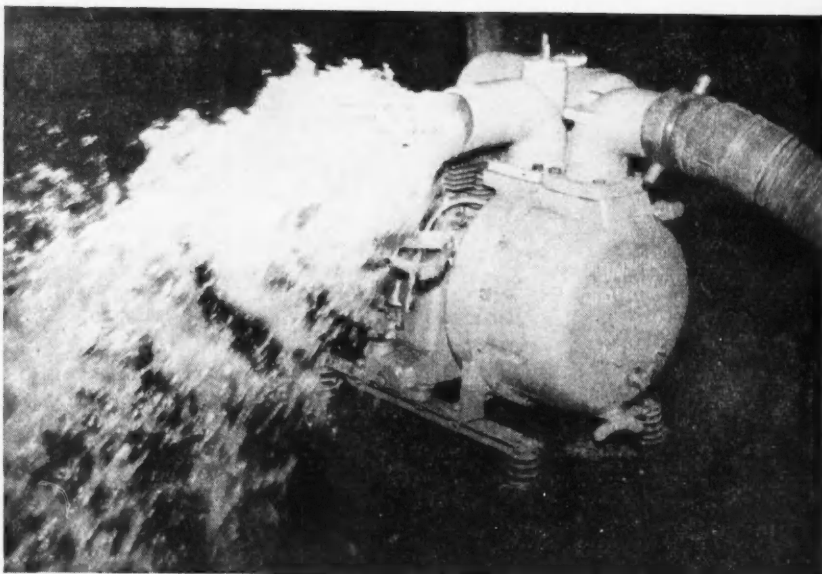


What is GRADE ability?

See the Colour advertisement
on cover vi, vii.

JOHNSON 'FASPRIME' RAPID PRIMING PUMPS with dual seal

- ★ 'Dual Seal' proved by 1,000 hour test continuously handling 43% sharp sand in suspension
- ★ Fastest Priming. Highest Suction
- ★ Handle seepage at low engine revs.
- ★ Adequate horse-power for the duty
- ★ All wearing parts corrosion-resistant—easily and cheaply replaced
- ★ Sizes—2", 3" and 4" Centrifugal Pumps. 3" Mud Pump.
- ★ Petrol, Diesel, Electric or Independent Drive
- ★ Service and Spares within 24 hours



3" Portable Pump Mk 9A. Capacity 10,000 GPH

JOHNSON

QUALITY PAYS

C. H. JOHNSON (Machinery) LIMITED STOCKPORT CHESHIRE
Telephone: STOCKPORT 2642/5. Telex 66-297.
Telegrams: 'Machinery' Stockport.

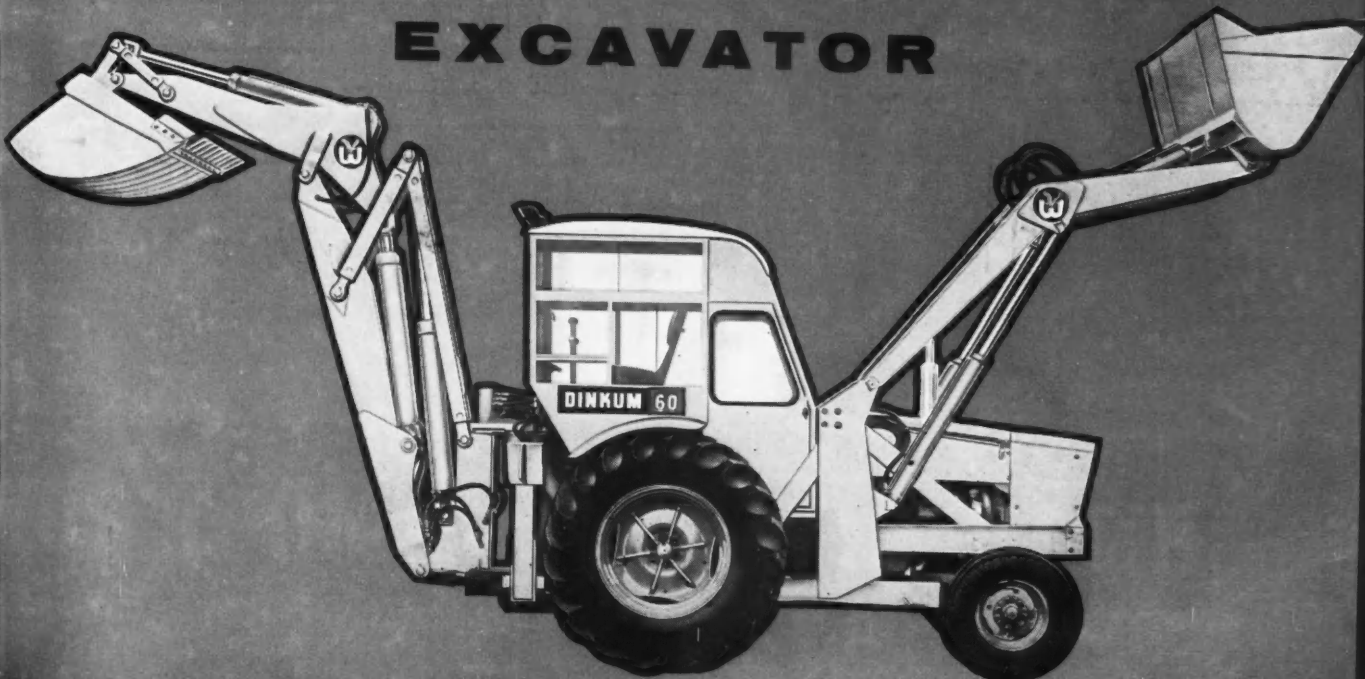
FOR DUMPERS · MUD PUMPS · CENTRIFUGAL PUMPS · POWER RAMMERS · FOKER VIBRATORS · SCREED VIBRATORS · FIXED AND MOBILE CONVEYORS
London Sales and Service Depot: 38/44 Lower Richmond Road, S.W.14 Tel: PROspect 7671. Scottish Sales and Service Depot: 119 Whitefield Road, Govan, Glasgow, S.W.1. Tel: Govan 2701



WHITLOCK

DINKUM 60

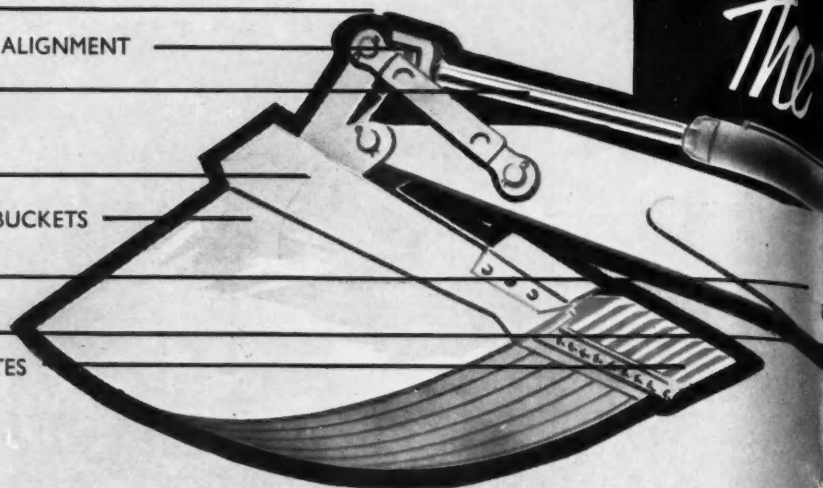
EXCAVATOR



LOW OVERALL HEIGHT UNDER BRIDGES _____
 UNIVERSAL JOINT ENSURING CONSTANT SELF ALIGNMENT _____
 POWERFUL THRUST DIG AND CROWD RAM _____

REINFORCED LUGS AND SIDE PLATES _____
 FULL CROWD ACTION ON LARGE CAPACITY BUCKETS _____

UNBREAKABLE DIG ARM _____
 TWO INCH DIAMETER PINS AND BEARINGS _____
 BOLT-ON MANGANESE STEEL TEETH AND PLATES _____



NIGHT WORKING LIGHTS OPTIONAL _____
 STRONG BOX SECTION LIFT LINKS _____
 SLIDE-ASIDE REAR WINDOWS _____
 DROP FORGED ENDS BUILT INTO ALL LINKAGES _____
 INTERCHANGEABLE DIG AND LIFT RAMS WITH UNIVERSAL COUPLINGS _____

DE-LUXE FOLD-OVER SEAT _____
 ENGINE THROTTLE CONTROL FROM OPERATOR'S SEAT _____
 HYDRO FLUID TEMPERATURE AND PRESSURE GAUGES _____
 CONTROL VALVES _____

NON-SLIP RETRACTABLE FEET AND ROAD PADS _____
 HEAVY DUTY BOX SECTION MAIN JIB WITH BUILT-IN HYDRAULIC STEEL TUBES _____
 HEAVY GAUGE DISC WHEELS AND 8-PLY TYRES _____
 FAN AIR COOLING DUCT _____

SWIVEL COUPLINGS AT ALL MOVING POINTS OVERCOME FLEXING _____
 ROBUST SLEWPOST ENCLOSING STEEL HYDRAULIC TUBES _____
 HEAVY DUTY STABILIZER RAM _____
 FORGED AND GROOVED QUADRANT _____
 LARGE DIAMETER SLEW POST BEARING _____

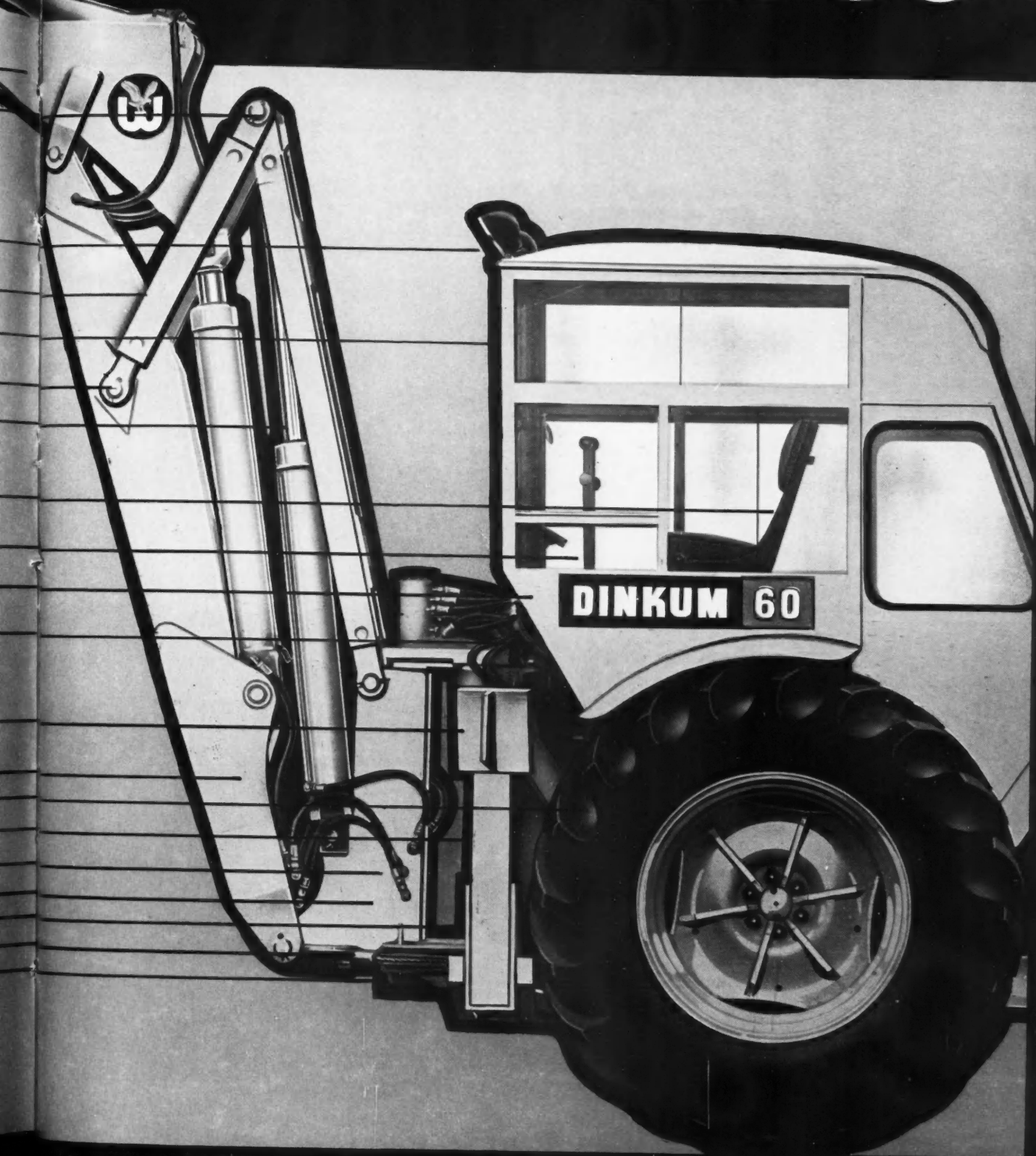
The

BRITAIN'S BEST AND MOST POWERFUL
WHITLOCK BROS LTD. GREAT YELDHAM ESSEX

the

WHITLOCK

DINKUM 60



POWERFUL HYDRAULIC EXCAVATOR

EX Telephone: Great Yeldham 305 (8 Lines)

OUTSTANDING FEATURES OF

NOTHING CUMBERSOME or top-heavy about the Dinkum but superb design and low overall weight and height.

TREMENDOUS TRACTION and manoeuvrability in confined areas and ability to work in wet and heavy conditions.

NO TIME LOST in getting in and out of the cab for levelling up on slopes but instantaneous levelling up from the operator's seat with hydraulic stabilisers adjustable from 6 feet 6 inches to 13 feet 6 inches wide.

PERFECT VISIBILITY from a De-luxe roomy cab—one with 2 sliding doors, 6 slide aside windows—and which locks up. Cosy in winter, cool in summer.

WILL EXCAVATE CLOSE UP TO WALLS without danger to operator. Separate trouble-free hydraulic systems for excavator and shovel.

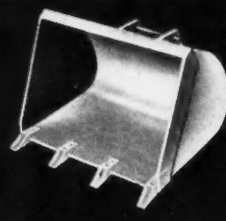
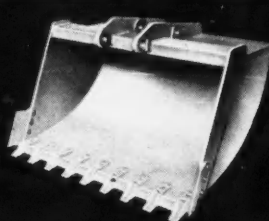
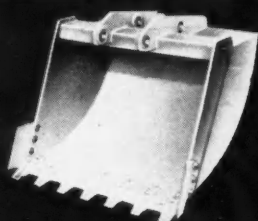
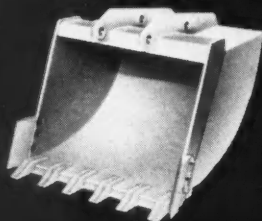
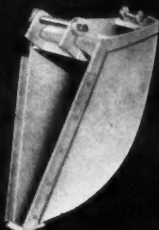
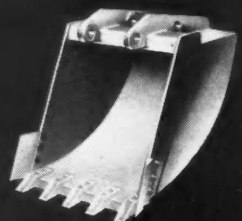
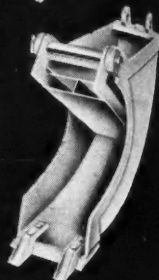
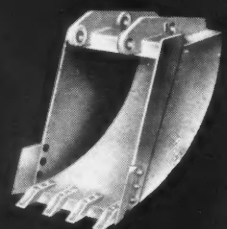
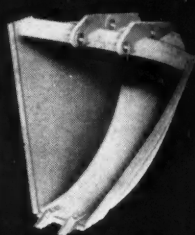
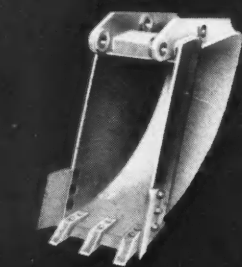
THE SMOOTH CONTROLLED SLEWING and fast working is only possible with the Dinkum system of hydraulics which enable several control valves to be operated simultaneously.

UNIQUE DESIGN allows exceptional accessibility for maintenance of machine and power unit.

PRESSURE GAUGE AND THERMOMETER in front of operator enables him to check that machine is operating at maximum efficiency.

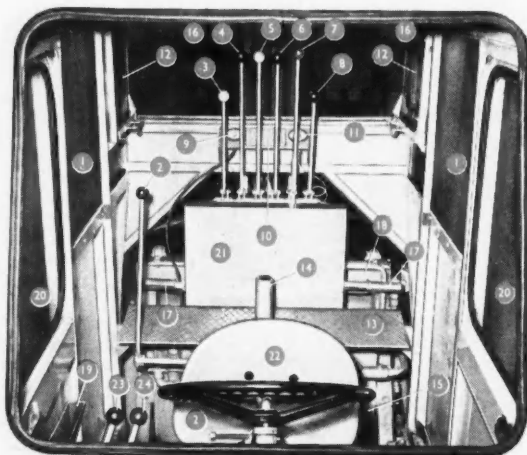
LARGE PINS AND BEARINGS, universal joints at ends of rams and banjo couplings at hose ends reduce maintenance costs.

THERE'S NOTHING TO COMPARE WITH A DINKUM FOR RELIABILITY, LOW COST OF UPKEEP AND SPEED IN OPERATION.



A PURPOSE-BUILT DINKUM BUCKET FOR EVERY JOB

1. SLIDING SIDE WINDOWS
2. ENGINE THROTTLE CONTROL
3. LEFTSIDE STABILIZER CONTROL
4. LIFT RAM CONTROL
5. BUCKET CROWD CONTROL
6. DIG RAM CONTROL
7. SLEWING CONTROL
8. RIGHTSIDE STABILIZER CONTROL
9. HYDRO FLUID THERMOMETER
10. OPERATING INSTRUCTIONS
11. HYDRAULIC PRESSURE GAUGE
12. SLIDE-ASIDE REAR WINDOWS
13. FOOTPLATE

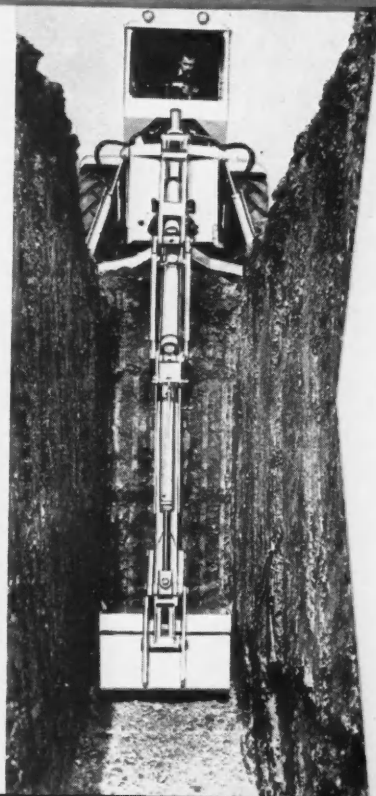
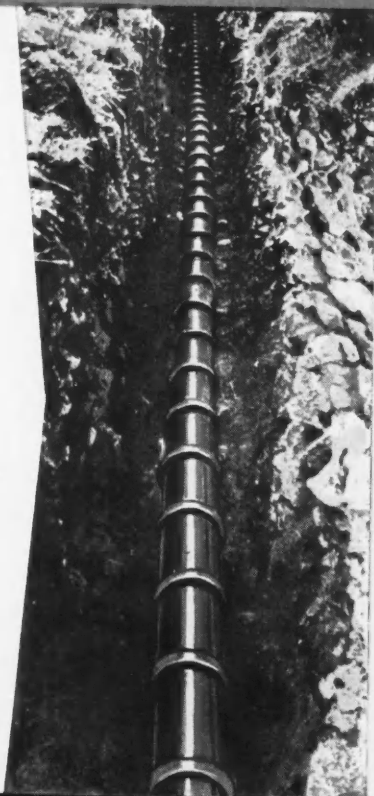


14. SOCKET OPERATOR'S SEAT
(SEAT REMOVED FOR PHOTOGRAPHIC CLARITY)
15. TOOL BOX
16. UNINTERRUPTED VISIBILITY
17. FOOT SLEW CONTROLS
18. HYDRAULIC FLUID RESERVOIR
19. POCKET FOR LOG BOOK, ETC.
20. SLIDING CAB DOORS
21. ENCLOSED VALVE CHEST
22. FORWARD DRIVING SEAT
23. SHOVEL LIFT CONTROL
24. SHOVEL CROWD CONTROL

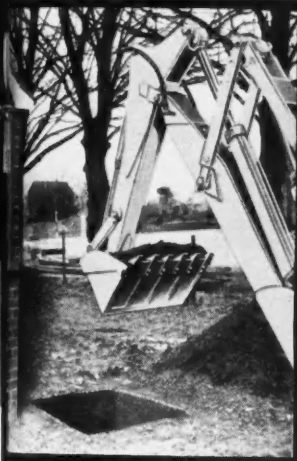
PERFECT VISIBILITY FROM THIS ROOMY CAB

OF THE **DINKUM 60**

In a class
by itself
for fast
working in
Chalk
Shale
Stone
Boulders
Clay and
Rock



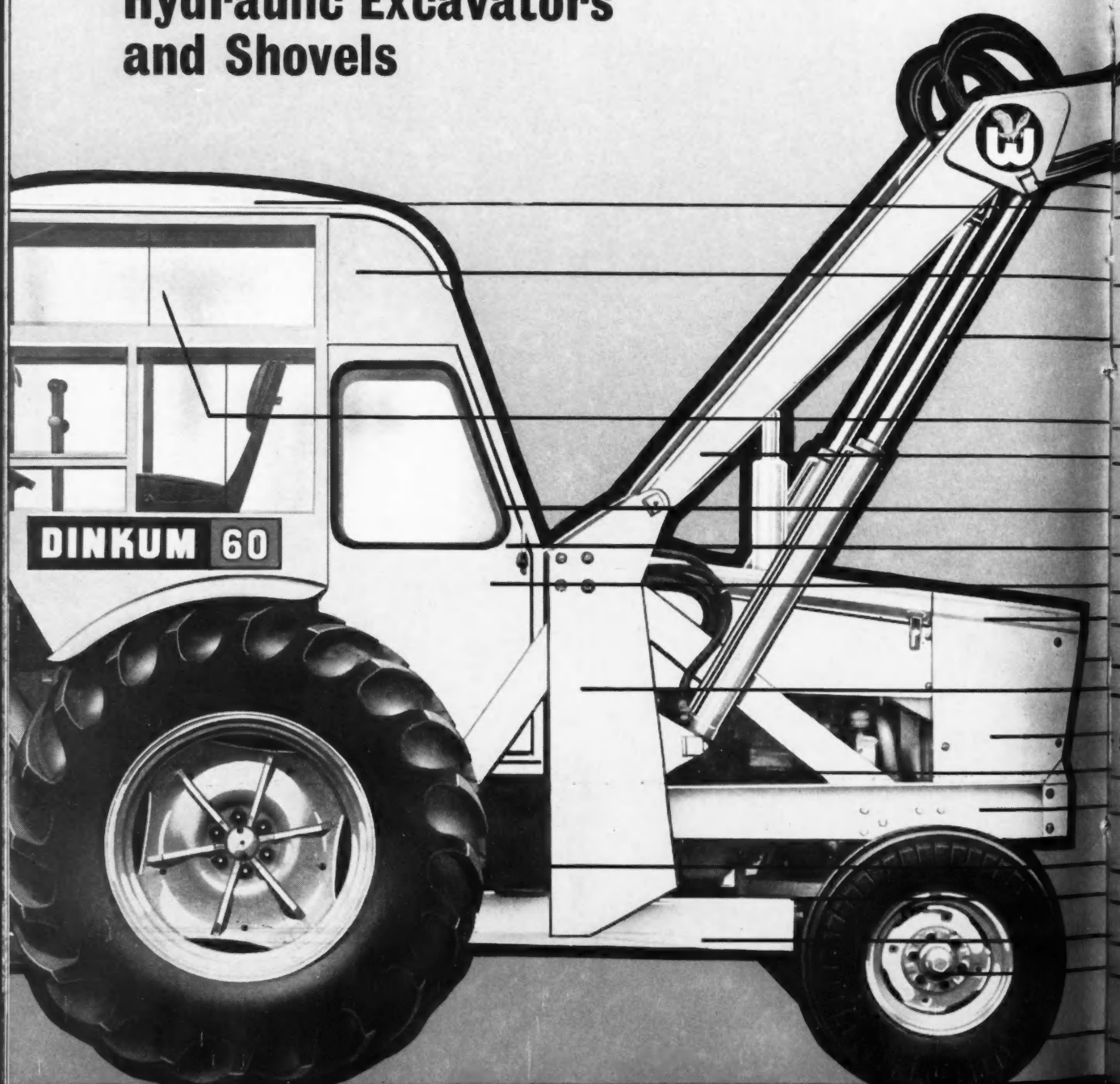
Clean
straight
sides
and a
level
bottom
in trenches
up to
72"
wide



AB UNSURPASSED FOR **S Q U A R E** HOLES

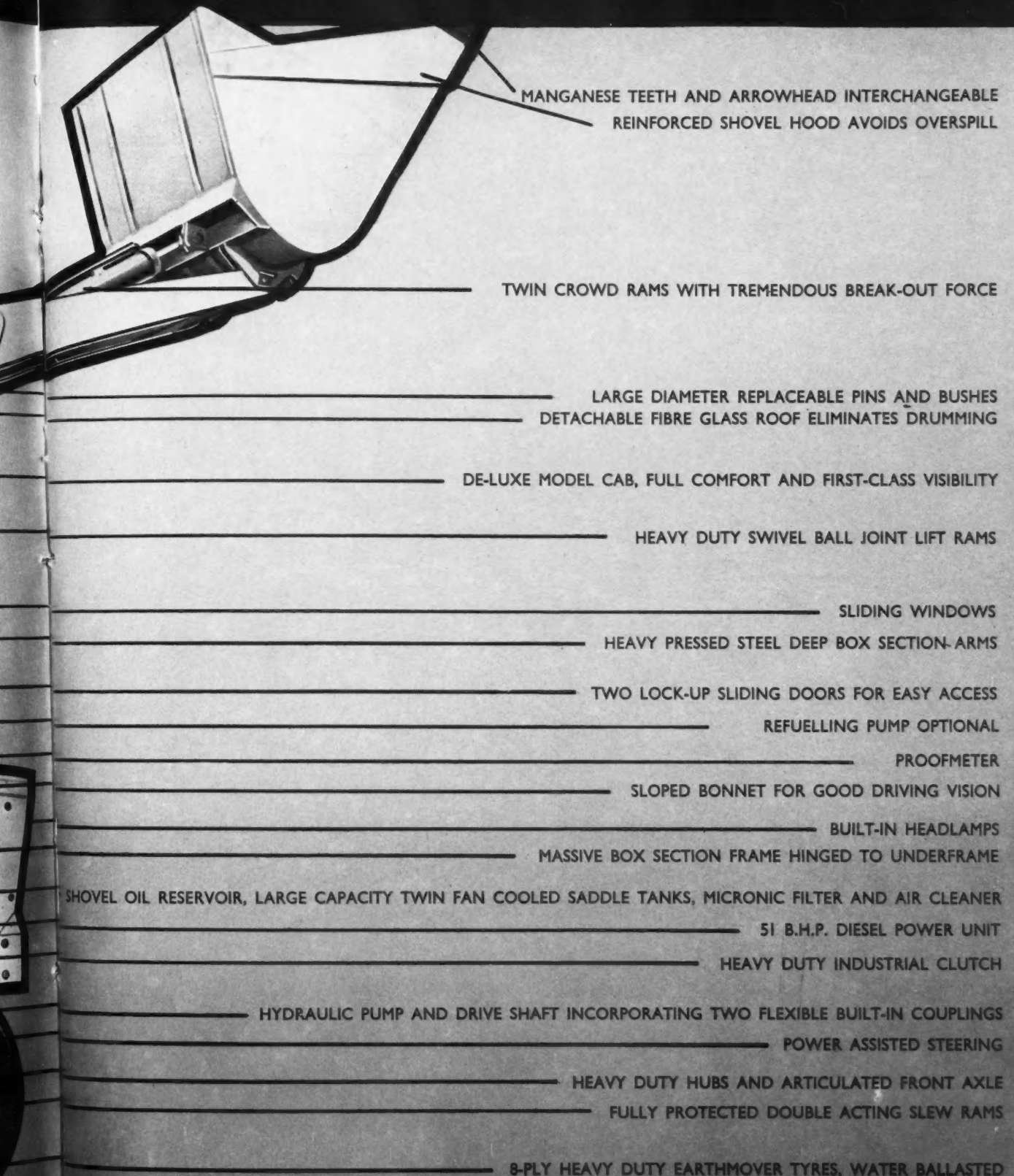
WHITLOCK ***DINKUM***

***ONLY* WHITLOCK manufacture
a complete range of
Hydraulic Excavators
and Shovels**



BIGGER BREAK-OUT FORCE, BIGGER LOAD, B
WHITLOCK BROS LTD. GREAT YELDHAM ESSEX T

66 SHOVEL



MANGANESE TEETH AND ARROWHEAD INTERCHANGEABLE
REINFORCED SHOVEL HOOD AVOIDS OVERSPILL

TWIN CROWD RAMS WITH TREMENDOUS BREAK-OUT FORCE

LARGE DIAMETER REPLACEABLE PINS AND BUSHES
DETACHABLE FIBRE GLASS ROOF ELIMINATES DRUMMING

DE-LUXE MODEL CAB, FULL COMFORT AND FIRST-CLASS VISIBILITY

HEAVY DUTY SWIVEL BALL JOINT LIFT RAMS

SLIDING WINDOWS

HEAVY PRESSED STEEL DEEP BOX SECTION ARMS

TWO LOCK-UP SLIDING DOORS FOR EASY ACCESS

REFUELLING PUMP OPTIONAL

PROOFMETER

SLOPED BONNET FOR GOOD DRIVING VISION

BUILT-IN HEADLAMPS

MASSIVE BOX SECTION FRAME HINGED TO UNDERFRAME

SHOVEL OIL RESERVOIR, LARGE CAPACITY TWIN FAN COOLED SADDLE TANKS, MICRONIC FILTER AND AIR CLEANER

51 B.H.P. DIESEL POWER UNIT

HEAVY DUTY INDUSTRIAL CLUTCH

HYDRAULIC PUMP AND DRIVE SHAFT INCORPORATING TWO FLEXIBLE BUILT-IN COUPLINGS

POWER ASSISTED STEERING

HEAVY DUTY HUBS AND ARTICULATED FRONT AXLE

FULLY PROTECTED DOUBLE ACTING SLEW RAMS

8-PLY HEAVY DUTY EARTHMOVER TYRES, WATER BALLASTED

ROAD, BETTER MANOEUVRABILITY AND TRACTION

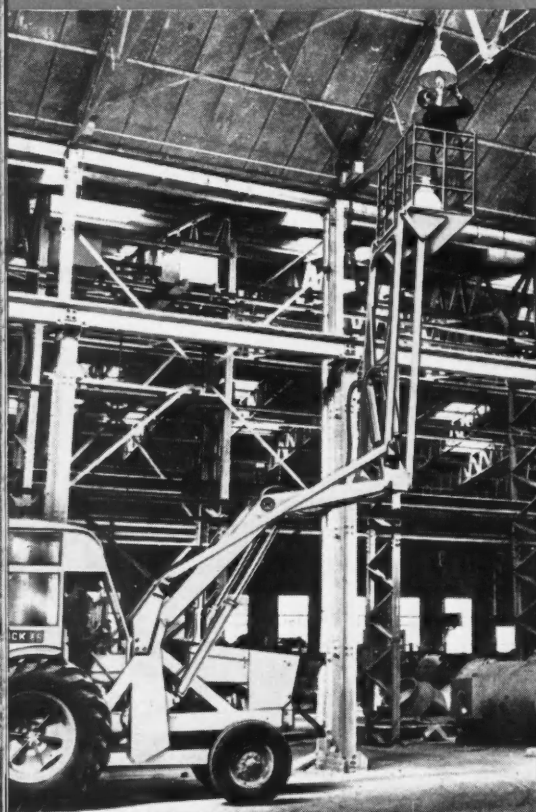
SEX Telephone: Great Yeldham 305 (8 Lines)

THE DINKUM 66

HAS VERY MANY ATTACHMENTS



Crane attachments for lifting 1 ton to 13 feet and 15 cwt. to 17 feet are available.



A Maintenance Platform lifts loads of 5½ cwt. to 20 feet and can be operated from the cab or from the Platform.



A roll attachment hydraulically steered can be fitted and this can be lifted by the shovel arms for moving from site to site.



A High Lift attachment is available and will load onto scaffolding, or into high hoppers or dump over walls 12 feet 6 inches high.

- ★ POWERFUL TWIN CROWD RAMS
- ★ DOUBLE ACTING TWIN LIFT RAMS
- ★ HEAVY PRESSED STEEL BOX CONSTRUCTION FRAME
- ★ EXCEPTIONAL OPERATOR VISIBILITY AND COMFORT
- ★ SEPARATE FAN COOLED HYDRAULIC SYSTEMS
- ★ 5 FEET AND 6 FEET WIDE SHOVELS AND 6 FEET DOZER BLADES
- ★ INTERCHANGEABLE "A" BLADE AND MANGANESE SHOVEL TEETH
- ★ HEAVY DUTY FRONT AXLE HUBS AND WHEELS

ITS

ME

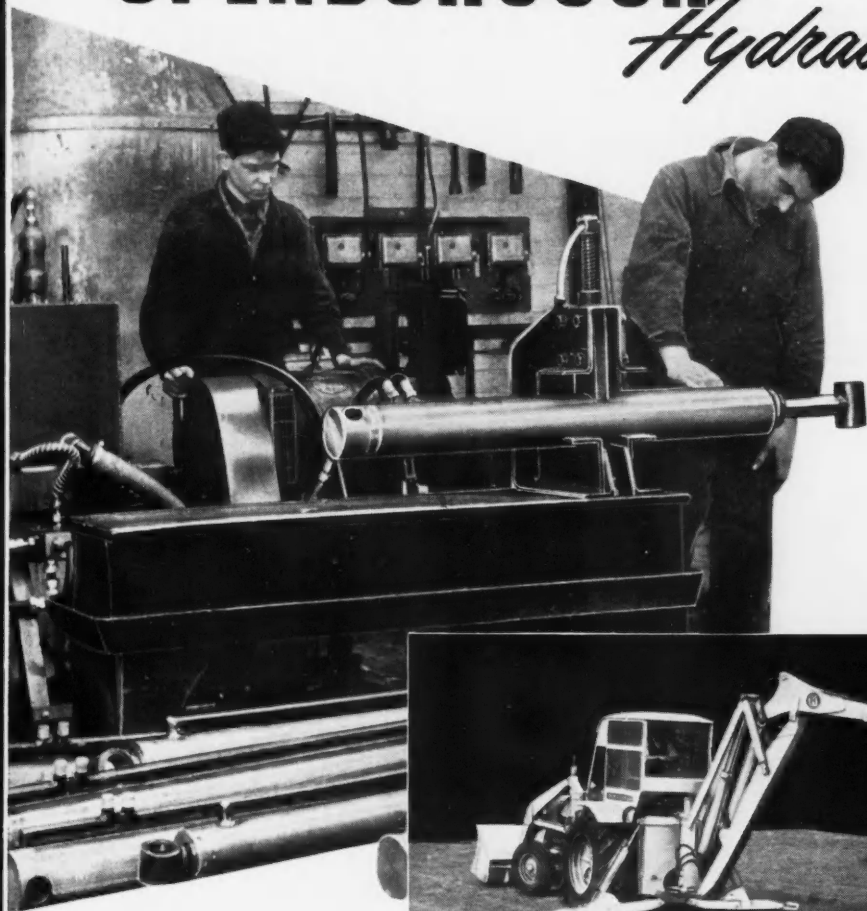
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WHITLOCK DINKUM

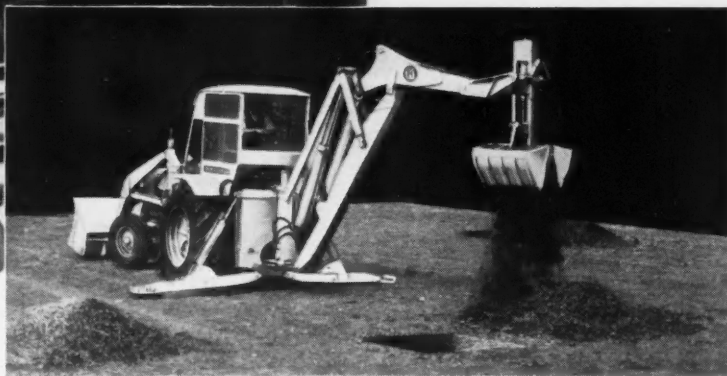
SPENBOROUGH

Hydraulics



contribute
towards the
tremendous power
and reliability
of Whitlock
earthmoving machines.

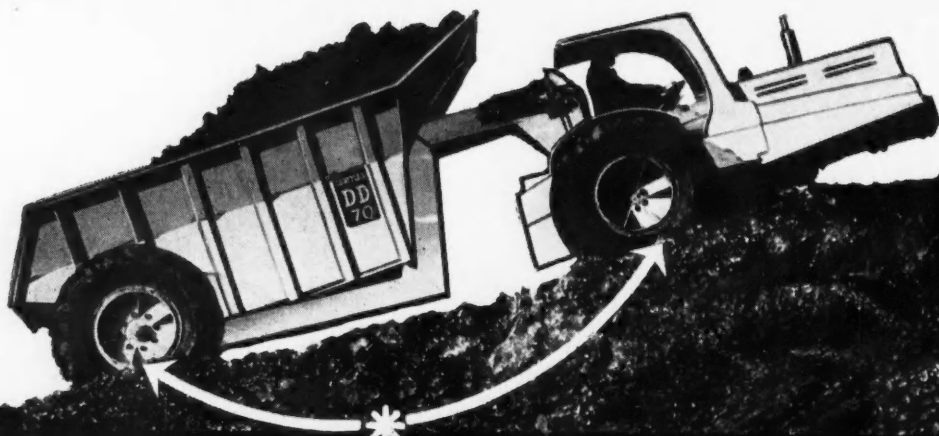
Photograph of the Dinkum 60 Excavator
digging square holes with the powerful
hydraulically operated grab.



SPENBOROUGH ENGINEERING CO. LIMITED
HECKMONDWIKE, YORKS. Tel: 1411 (5 lines) Grams: UNION, Heckmondwike
London and S.E. Counties:
B.B. Sales Ltd., 88 Clapham Road, S.W.9. Tel: and Grams: Reliance 2512

ONLY **WHITLOCK** provides a **COMPLETE RANGE**
of **HYDRAULIC EXCAVATORS** and **SHOVELS**

WHITLOCK DINKUM



Firestone

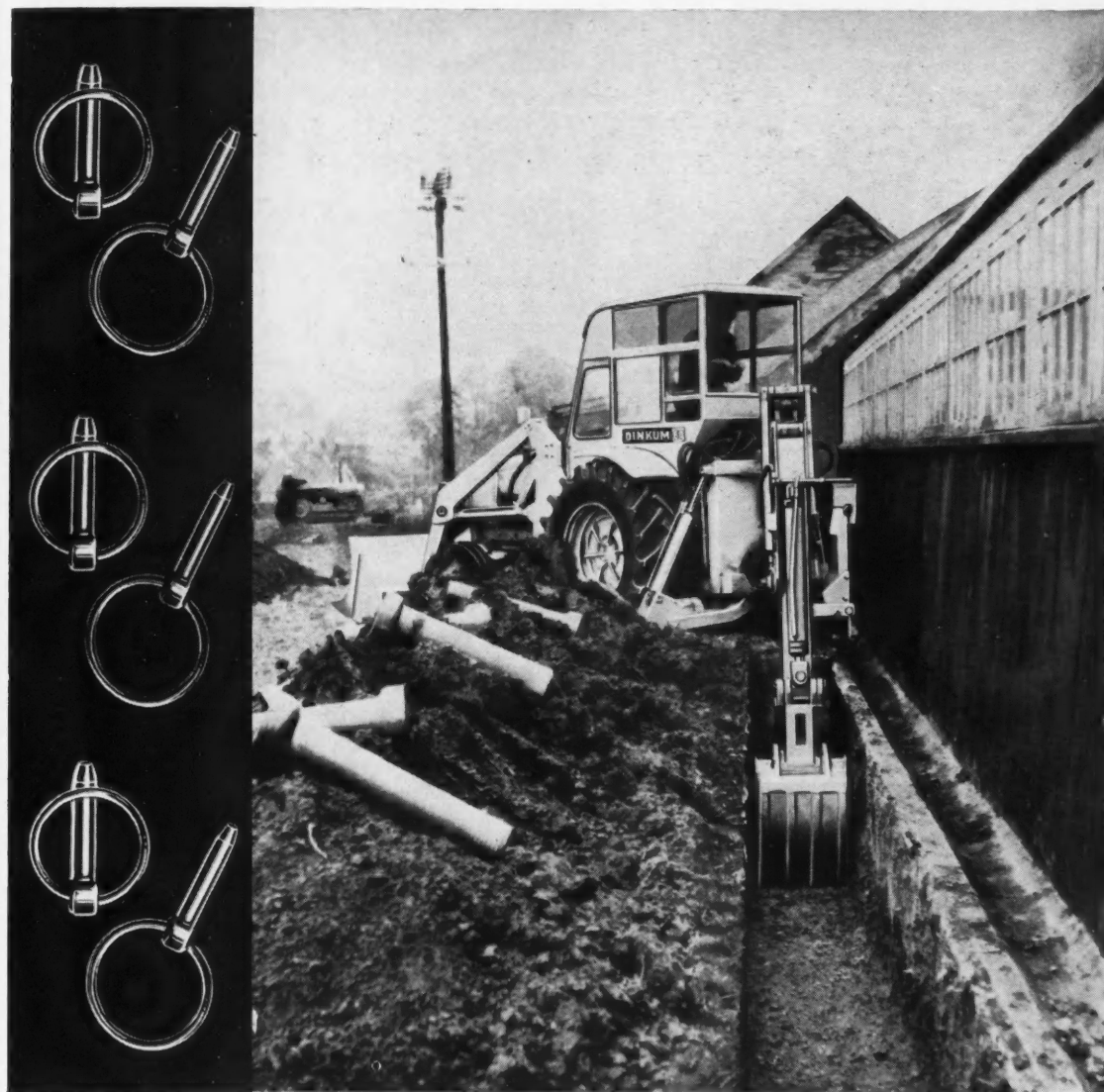
* **WHITLOCK** select Firestone tyres for their earthmoving equipment because they realise that

extra traction
means **extra output**
and **WHITLOCK** earthmoving equipment is renowned for its large output.



ONLY **WHITLOCK** provides a **COMPLETE RANGE**
of **HYDRAULIC EXCAVATORS** and **SHOVELS**

WHITLOCK DINKUM



Photograph shows a DINKUM 60 Excavator and WHITLOCK 66 Shovel digging up to the wall of a building

*BUCKETS AND OTHER ATTACHMENTS ARE FITTED
WITH QUICK RELEASE RING PINS FOR SPEEDY REMOVAL
and are supplied by*

SAMUEL LEWIS & CO. LTD

N E T H E R T O N · D U D L E Y · W O R C S

***ONLY* WHITLOCK** provides a **COMPLETE RANGE**
of **HYDRAULIC EXCAVATORS and SHOVELS**

WHITLOCK DINKUM

PHOTOGRAPH SHOWS HIGH ANGLE OF TIP OF THE

DINKUM DUMPER

AND FINGER TIP HYDRAULIC STEERING GIVES

THIS 90 DEGREES 13 ft. RADIUS ANGLE OF TURN

POWER JACKS
LIMITED

SUPERFINE HYDRAULIC RAMS POWER
THESE OPERATIONS



WHEN IT'S A QUESTION OF **HYDRAULICS** IT PAYS TO CONSULT

POWER JACKS
LIMITED

AGNES ROAD · ACTON · LONDON W.3

Phone: SHEPHERDS BUSH 3443

ONLY **WHITLOCK** provides a **COMPLETE RANGE**
of **HYDRAULIC EXCAVATORS** and **SHOVELS**

WHITLOCK DINKUM

Whitlock use **VICKERS** Hydraulics

STEIN ATKINSON VICKERS are proud of their long association with Whitlock Bros. Ltd. who are again using **VICKERS** Hydraulics on their new DINKUM.

STEIN ATKINSON VICKERS HYDRAULICS LTD

Manufacturers in Britain of **VICKERS** Hydraulics

197 Knightsbridge, London, S.W.7. Telephone: *KNightsbridge 9641*

Technical Sales and Service at London, Birmingham, Manchester, Glasgow and Leeds

SAS 33

ONLY **WHITLOCK** provides a **COMPLETE RANGE**
of **HYDRAULIC EXCAVATORS** and **SHOVELS**

modern
architecture
and bigger,
finer
buildings
are changing
the face
of Britain . . .

but
Fosalsil
remains
the basis of
modern
flue
construction



THORN HOUSE, Upper St. Martin's Lane, London, W.C.2.
Architects: Messrs. Basil Spence & Partners.
Heating Consultants: Messrs. A. F. Myers & Partners.
Contractors: Messrs. Bovis Ltd.

FOSALSIL flue bricks
were used throughout

Fosalsil

Made only by MOLER PRODUCTS LIMITED,
Hythe Works, Colchester phone: 3191 (3 lines)

COMPRESSORS

FOR HIRE

- *Mobile*
- *Portable*
- *Stationary*
- *Diesel and Electric*
- *18 to 630 cu. ft. f.a.d.*

also

KANGO



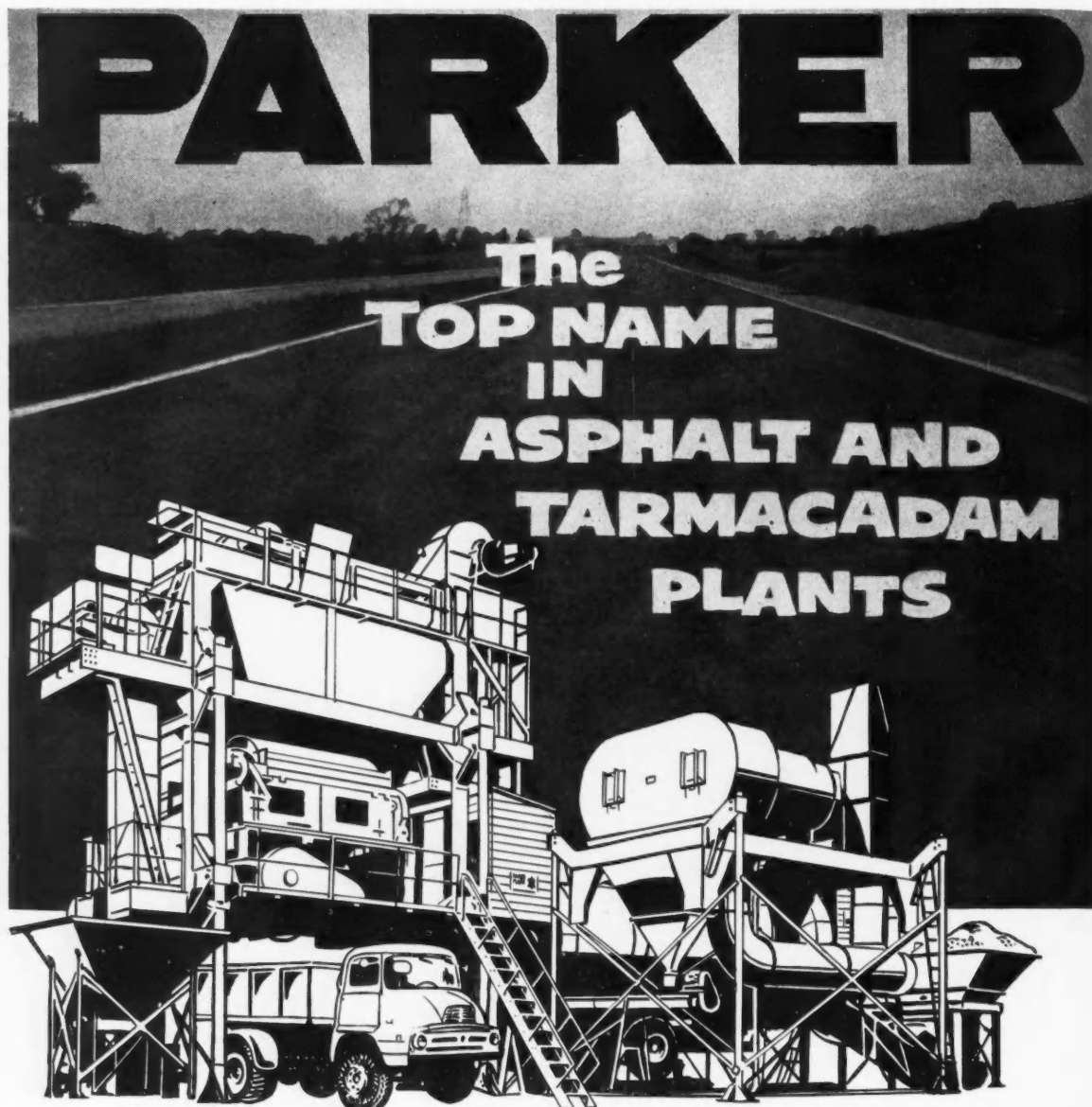
**ELECTRIC
HAMMERS**

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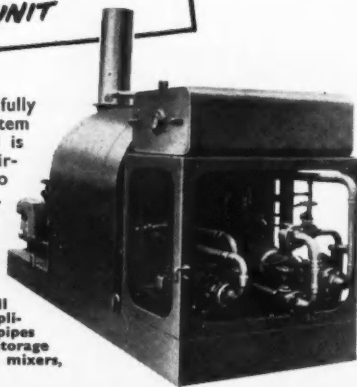
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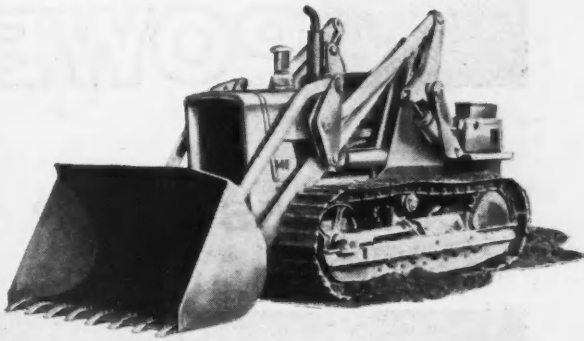
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cu. ft. a speed of 9/12 m.p.h., heavy duty 3-speed constant mesh change-on-the-move gearbox, etc. It cuts costs with every load.



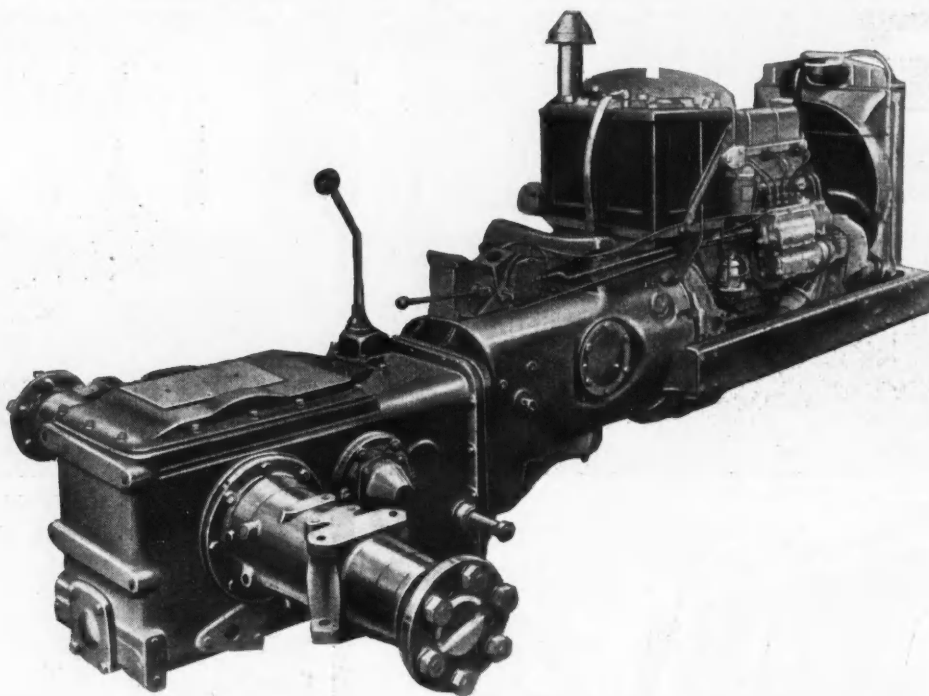
Distributors for THE JCB-4 HYDRAULIC EXCAVATOR AND JCB-4L LOADING SHOVEL * BRAY HYDRAULIC LOADING SHOVELS * SHAWNEE-POOLE REAR DUMPS * TRACK MARSHALL ANGLEDOZERS * WALKER-DOE DITCHERS * THWAITES DUMPERS * COUNTY ANGLEDOZERS * FORDSON POWER MAJOR AND DEXTA TRACTORS * DOE-MUREX WELDERS * PARKER CONCRETE MIXERS * HOLMAN COMPRESSORS * ROTARY HOE TRENCHERS * PETTER ENGINES * ARPS TRENCHERS * ROBOT EARTH BORERS * FIAT CRAWLER LOADERS * TUNNY CRANES * JOHN DEERE SHOVELS AND BULLDOZERS



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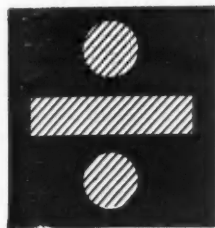
You'll have more power to push your work ahead when your equipment is based on Fordson units. Test figures show it; world-wide experience in the toughest conditions has proved it. Insist on Fordson Power * whenever you're buying equipment. It's your sure way to faster, more effective work cycles, to increased, more profitable output.



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DIVIDES YOUR HOLD-UPS



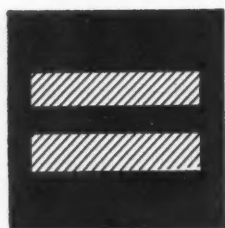
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Weatherill Shovel



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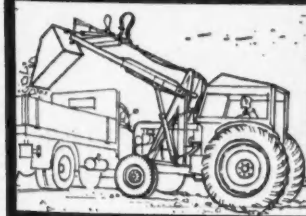
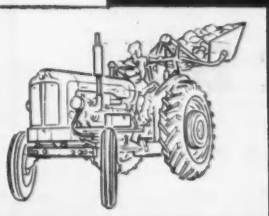
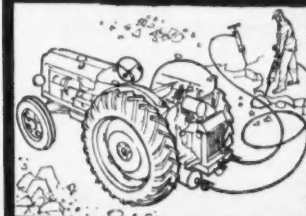
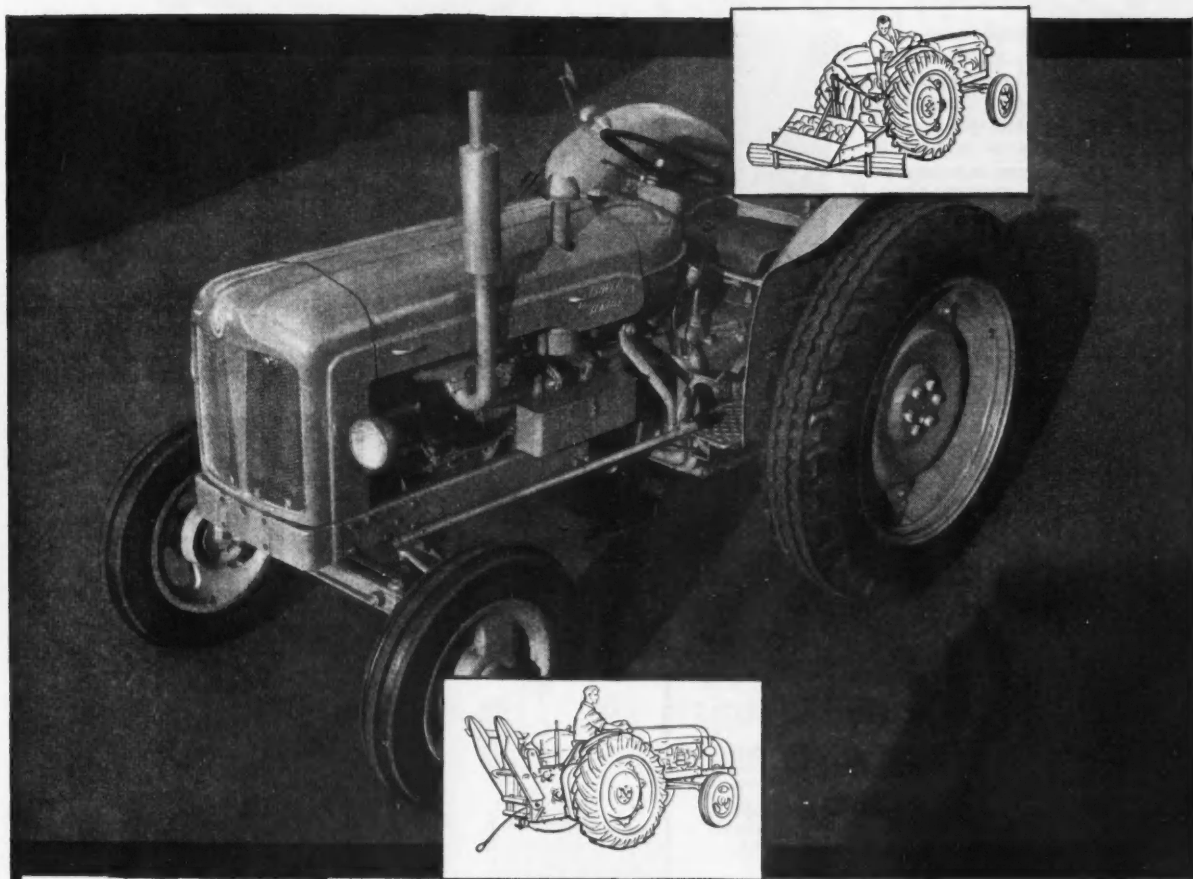
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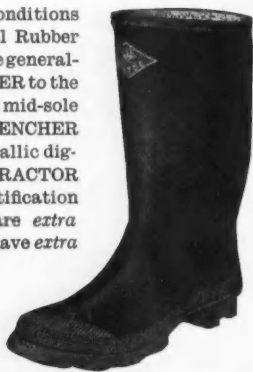
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| <input type="checkbox"/> CADET MIXER | <input type="checkbox"/> CUMFLOW MIXER |
| <input type="checkbox"/> JUNIOR MIXER | <input type="checkbox"/> ROUGHRIIDER DUMPER |
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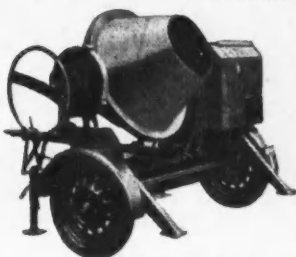
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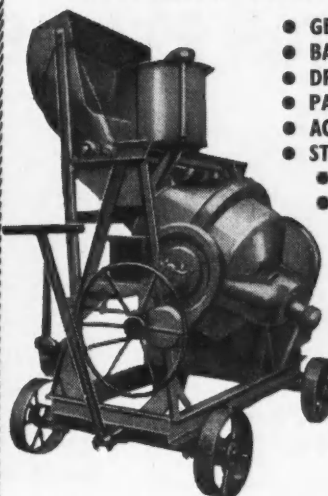
CADET MIXER

Gives up to 15 cu. yds. of concrete per day. Petrol or electric motor driven. Ideal for the small job.



TRAILEX JUNIOR MIXER

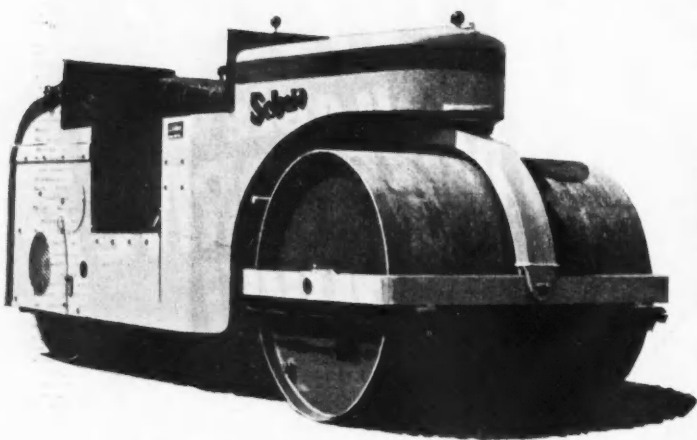
Size 3½ T. Fast-towing from site to site. Petrol or diesel engine. Non-Towing models in 3½ T and 5 T sizes.



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WELL PROVED THROUGHOUT EUROPE AND IN
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TWO MODELS AVAILABLE.

SPECIFICATION

	TYPE 20.0	TYPE 25.0
Working weight	4400 lbs.	9500 lbs.
With water ballast	5000 lbs.	11000 lbs.
Rolling width	35½"	43½"
Outside turning rad.	10'	14'
Total height	3'4"	5'1"
Total length	9'8"	12'6"
Total width	3'8"	4'7"

air cooled diesel engine electrically started
spring adjusted scrapers vertically directed vibrations
hydraulic steering

• now available for first time from sole U.K. Agents



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*Blockmaking
Machines*

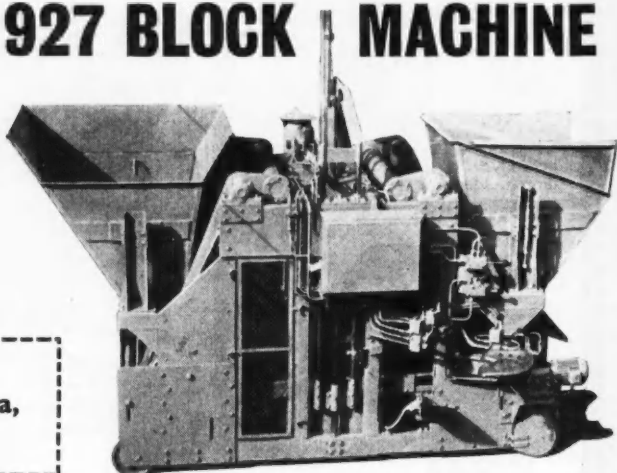
another ZENITH achievement

Following the outstanding world success of the "HYDRO AUTOMATON 907 SV" BLOCK MACHINE, the Zenith Organisation has pleasure in introducing the

HYDRO AUTOMATON 927 BLOCK MACHINE

- ★ For high production of Faced Blocks of all descriptions on the ground-laying system.
- ★ Will also produce normal standard concrete or clinker blocks.
- ★ Fully Hydraulic. Automatically controlled, with special features not to be found on any other block machine.
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LION III**...the last word
in crowd shovels**

Short of creating a completely new vocabulary, we don't know how we can even start to tell you how much *better* the Lion is, than any other crowd shovel you've ever known. So we'd like you to compare what the Lion will do (see table on right) with "the others". If you know of a machine that will do better, we'd like to hear from you.

Of course, these figures are only to whet your appetite. Where else would you get air control of the whole machine... controlled in all operations (except brake drums) by two simple levers? What other machine has a Cross-Roll Bearing Slewing Ring—or *all* gears fully enclosed and fully pump lubricated?

We believe the Priestman Lion will win you far, far greater output at tremendously reduced cost. If it doesn't we've failed. But we'd like *you* to tell us.

PERFORMANCE (Crowd Shovel)

$\frac{3}{4}$ yd. bucket • Boom at 45°
Working weight 50,500 lb.

DIGGING RADIUS	29' 0"
DIGGING HEIGHT	23' 6"
DUMPING HEIGHT	16' 0"
DEPTH OF CUT BELOW GROUND	7' 4"

Unrivalled anywhere!

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III**

The World's most advanced **$\frac{3}{4}$ - 1 yd. EXCAVATOR**

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BCA

Muir-Hill

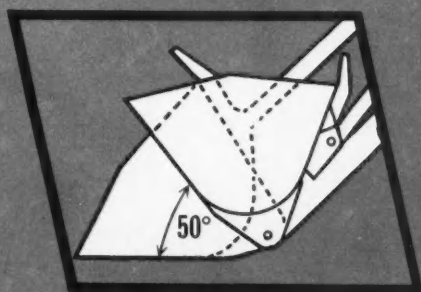
RD2

TEAR-AWAY AGAIN!

REAR WHEEL DRIVE LOADER



**WITH 50°
ROLL
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BUCKET**



Muir-Hill
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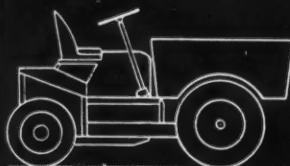
SIDE DISCHARGE DUMPER

This completely new side discharge-dumper provides hydraulically operated finger tip controlled side discharge of concrete—1'-3" above ground level whilst travelling under load

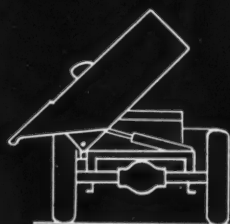
SPECIFICATION

- Chassis.** 6" x 3" and 4" x 2" Channel, electrically welded giving ample strength and rigidity.
- Skip.** 3/16" thick sheet steel, electrically welded and braced where required. Capacity: 27 cu. ft. water level. Speed of lift: 7 seconds. Loading height: 4 ft. Maximum payload: 30 cwts.
- Turning Radius.** 9 ft. 6 ins.
- Engine.** Petter AVA2. 11.5 h.p. @ 1650 r.p.m working off half speed shaft. Chain drive to clutch, slow running "Renold" $\frac{3}{4}$ " pitch.
- Gearbox.** Constant mesh, 3 forward, 1 reverse, gears hardened nickel chrome steel with a ground finish to ensure smoothness in running.
- Driving Axle.** 4 star differential with half shafts of 100 ton steel. 12" x 2½" brakes.
- Speeds:** 1st gear: 4 m.p.h.
2nd gear: 7½ m.p.h.
top gear: 12½ m.p.h.
reverse: 4 m.p.h.
- Pump.** 4½ g.p.m. @ 1,500 r.p.m. Chain drive.
- Control Valve.** Manually operated with relief un-loader valve set at 1,500 p.s.i.
- Ram.** 23" stroke-2½" bore with nickel chrome ram, tested 2,500 p.s.i.
- Hoses.** Adequate in strength with a single wire braid, tested 2,500 p.s.i.

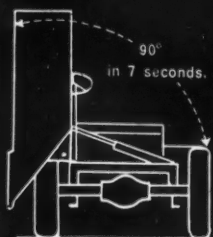
£720del.



Low loading height of 48 in. with 27 cu. ft. water level skip ensures use on site with standard mixers.



Positive hydraulic finger-tip control ensured by double-action ram driven from Dowty hydraulic motor directly coupled to engine.



Discharge lip within view of driver at all times ensuring accurate placing of concrete whilst in motion complete tip of 90° obtainable if required within 7 seconds.



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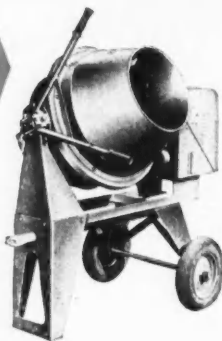
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Wickham

Passenger hoist

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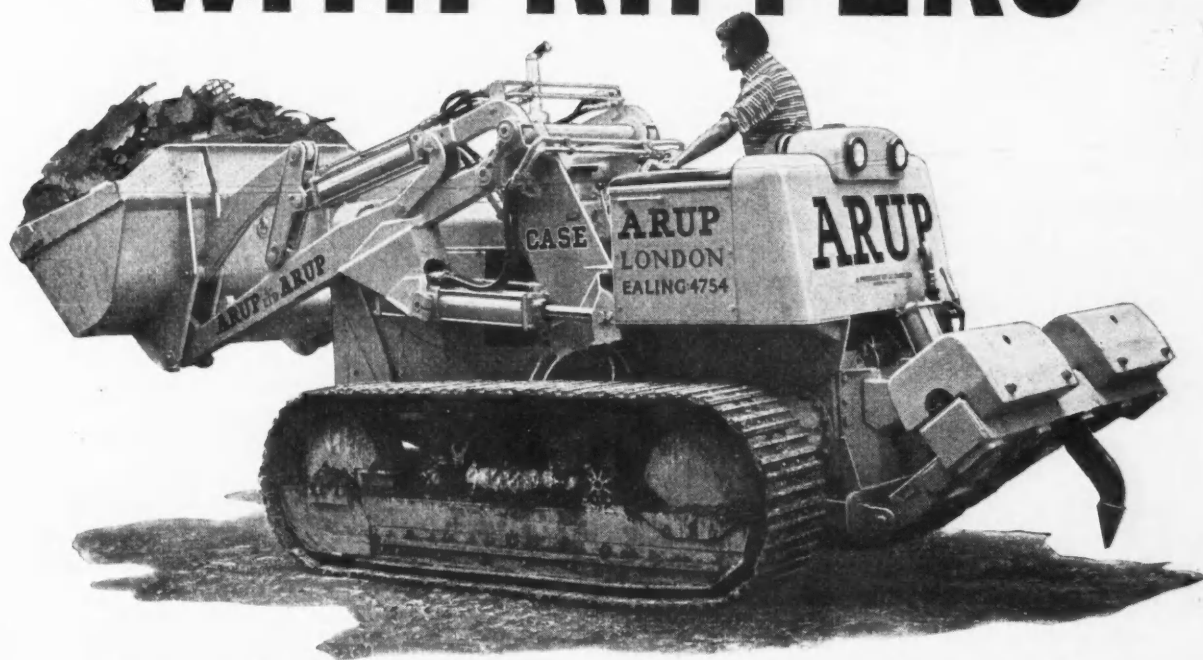
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now includes

CASE '1000' 2 CU.YD

TRACTOR SHOVELS WITH RIPPERS



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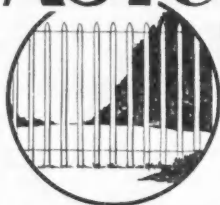
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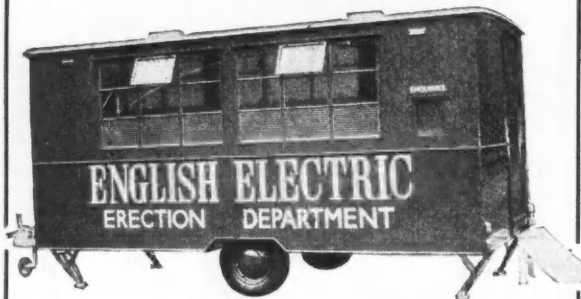
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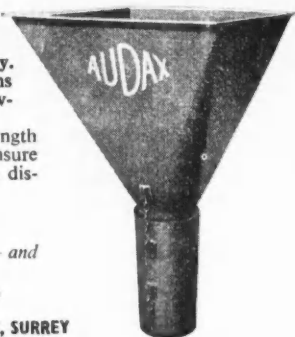
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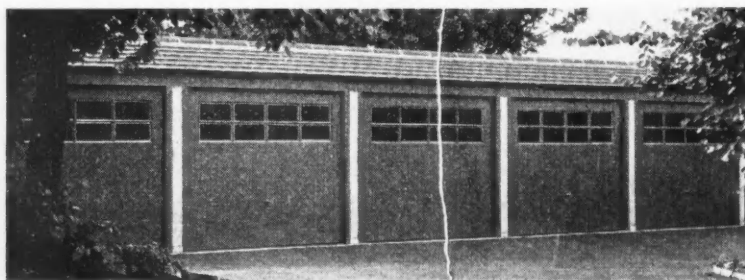
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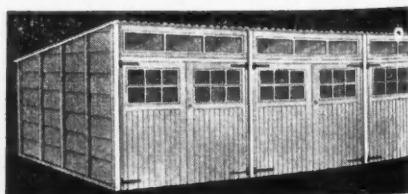
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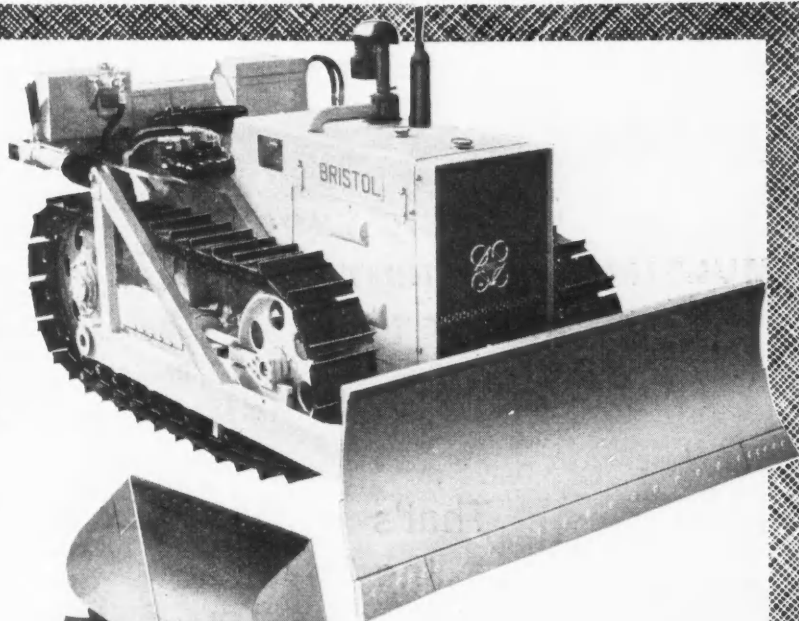
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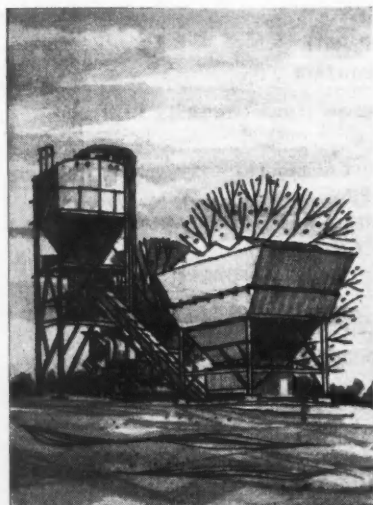
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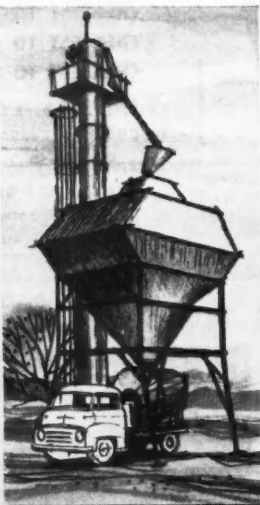
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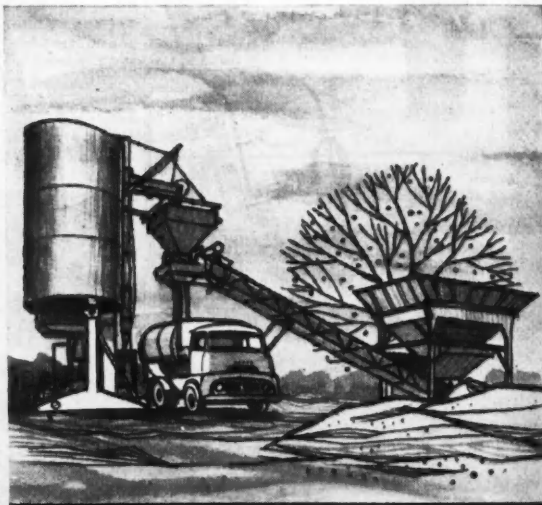
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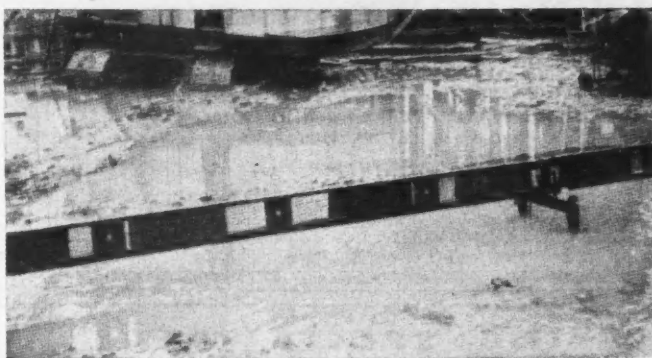


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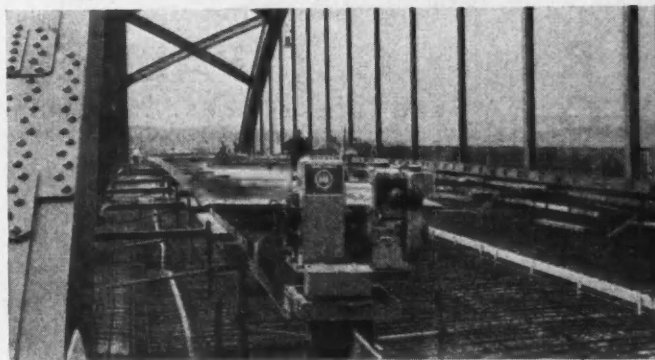
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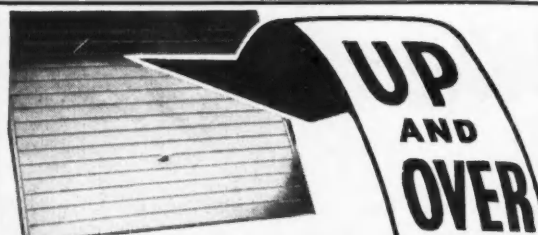
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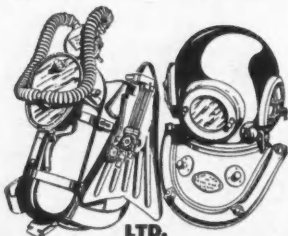
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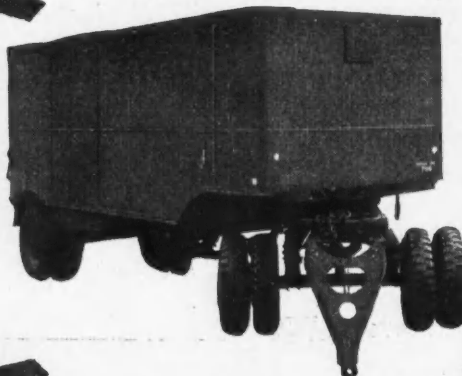
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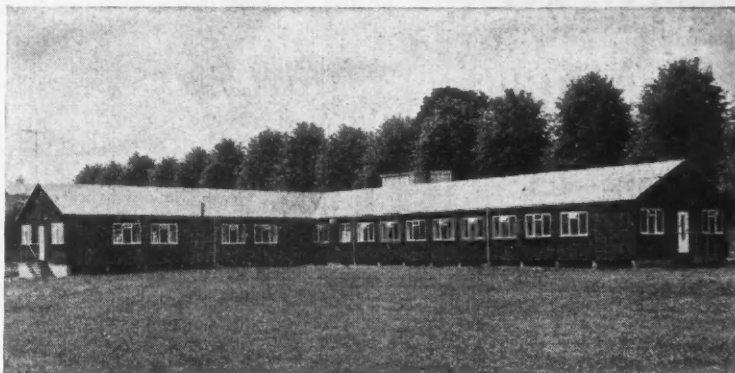
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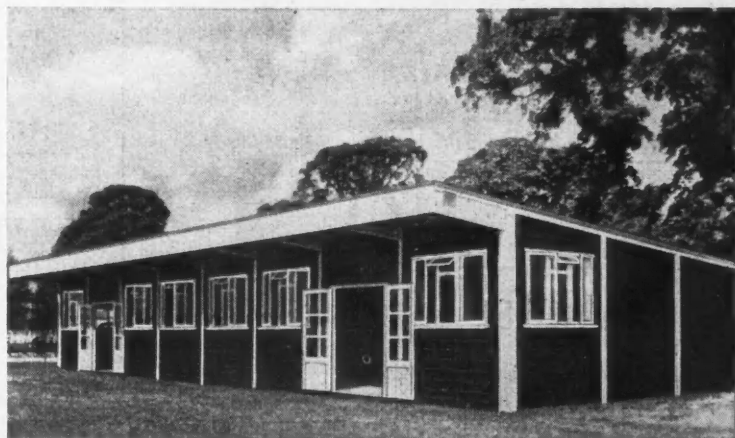
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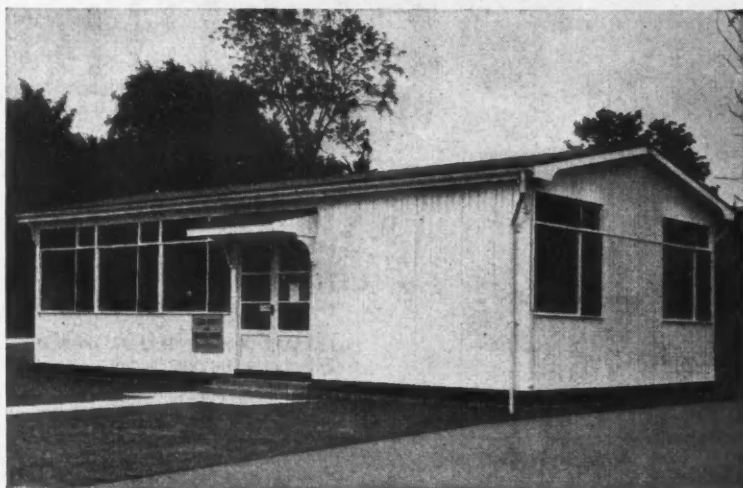
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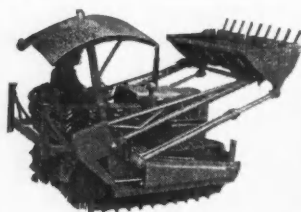
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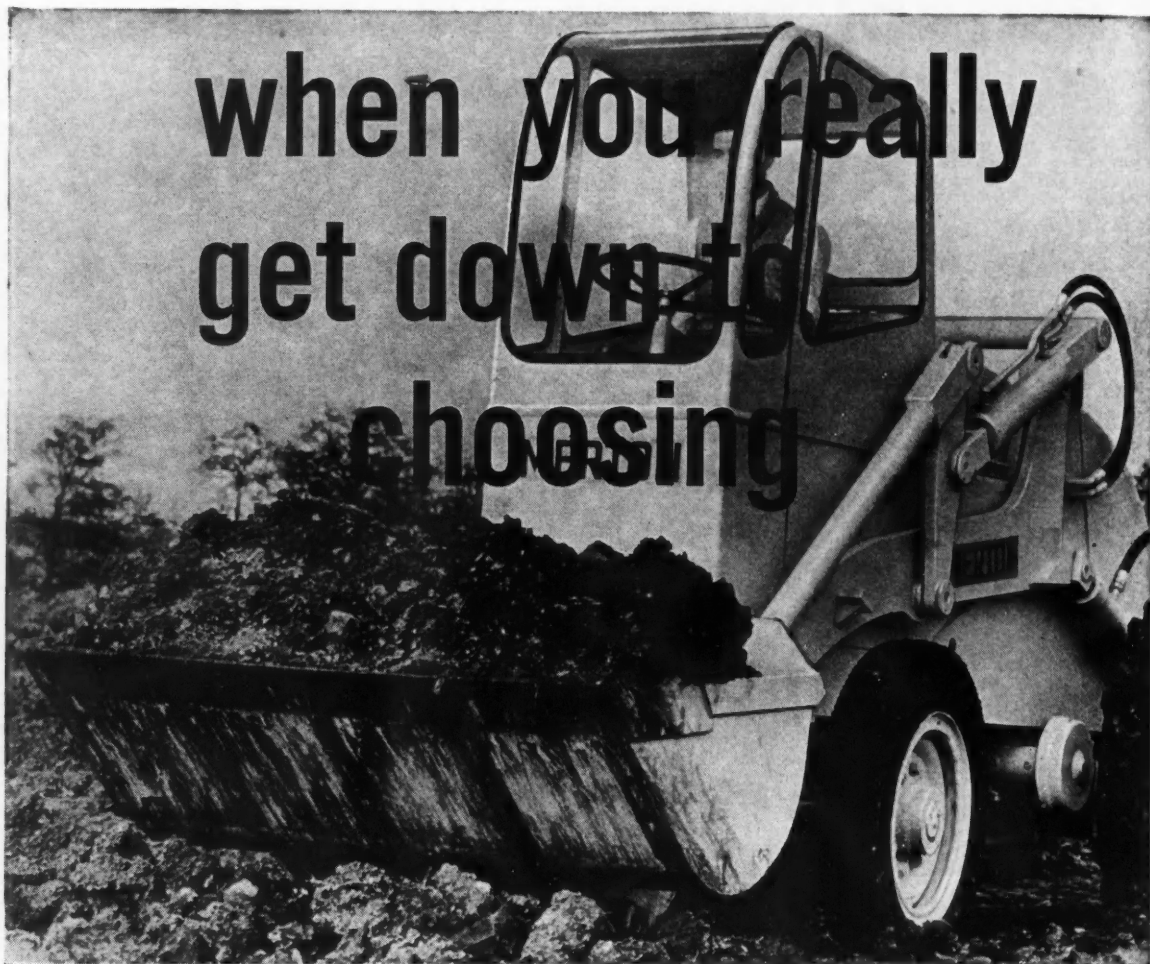
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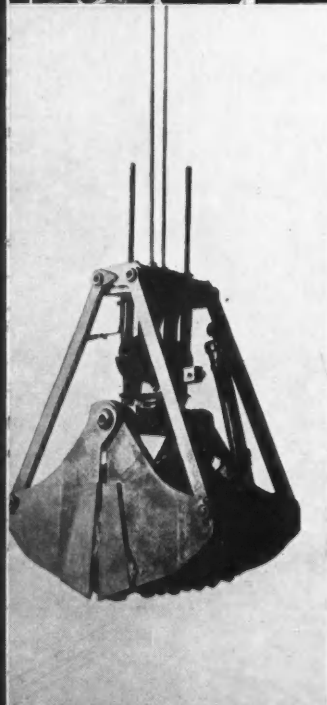
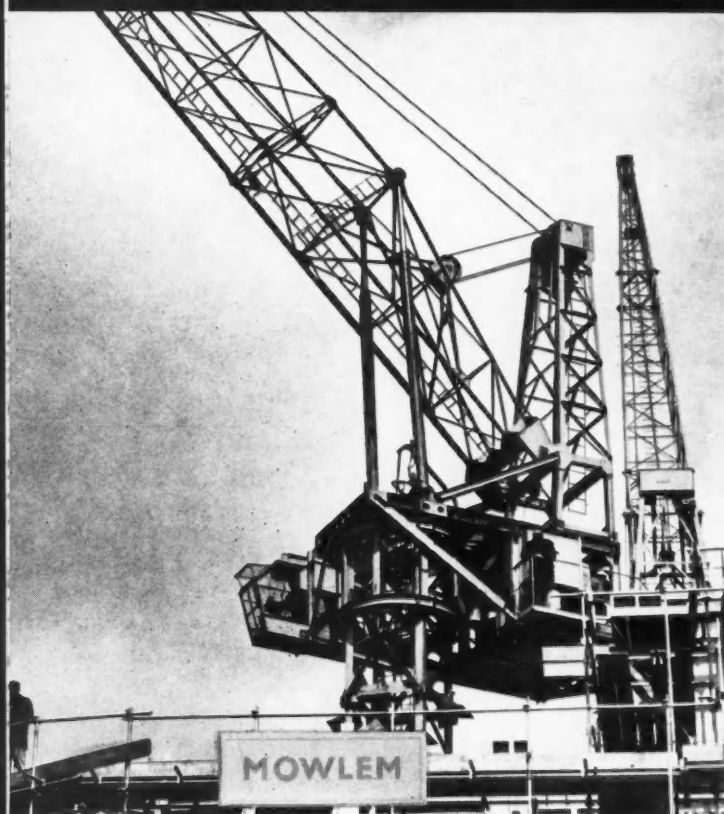
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Model	Radius ft.	Lift capacity cwt.	Height of pulley	Hoisting speed ft./min.	Slewing speed r.p.m.	Travelling speed ft./min.
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20A/25	20-59	22-47	83-122	65/164	1-2	115
25A/30	26-66	25-55	92-135	65/164	1-2	115
35A/45	32-82	27-59	116-168	79/184	1-0	130
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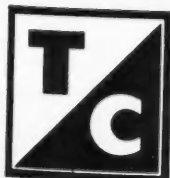
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Model	Minimum Radius		Hoisting speed ft/min.
	Radius ft.	Lifting capacity cwt.	
6A	16' 3"	21½	131
8A	23' 0"	18½	131
11A/13	21' 3"	23	335

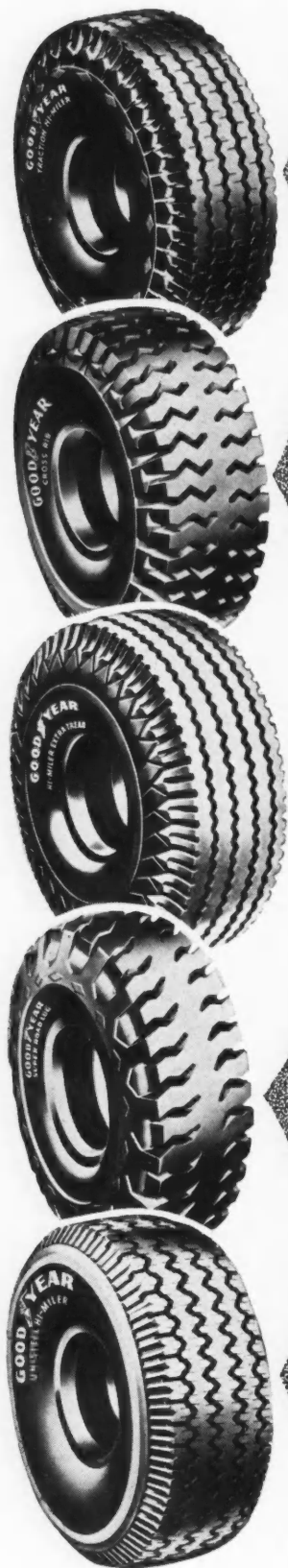


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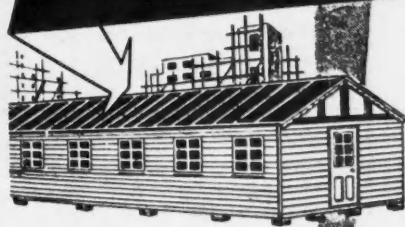
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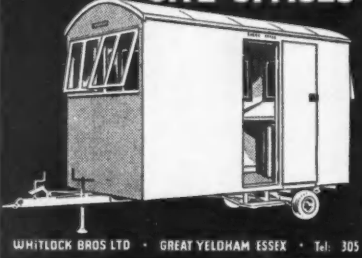
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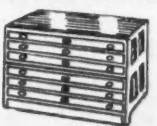
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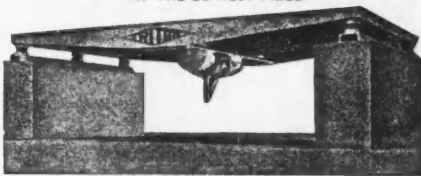
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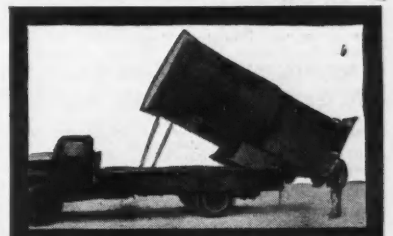
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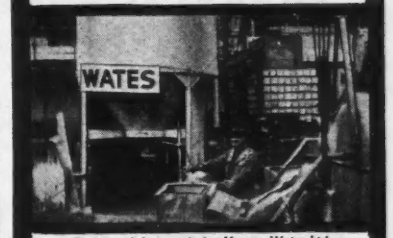
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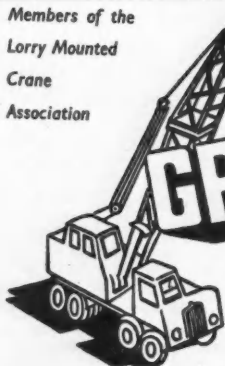
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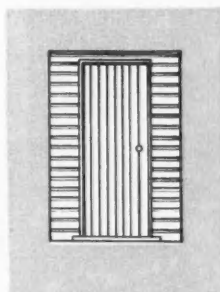
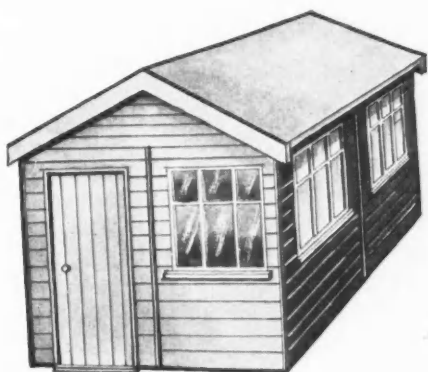
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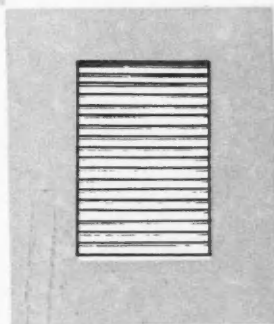
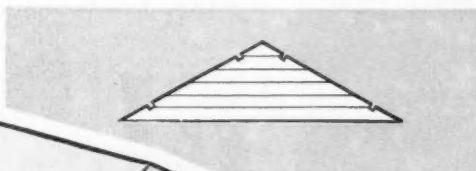
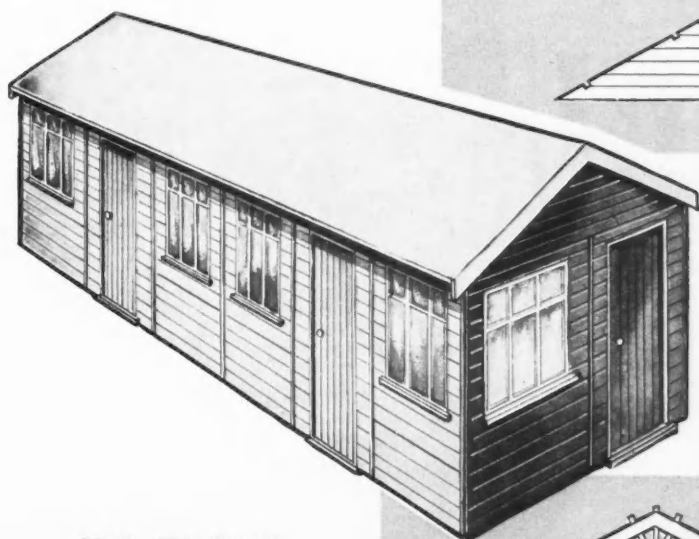
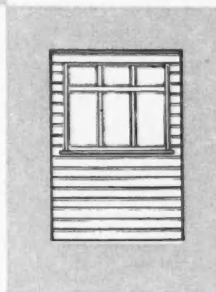
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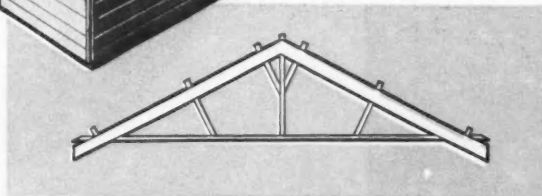


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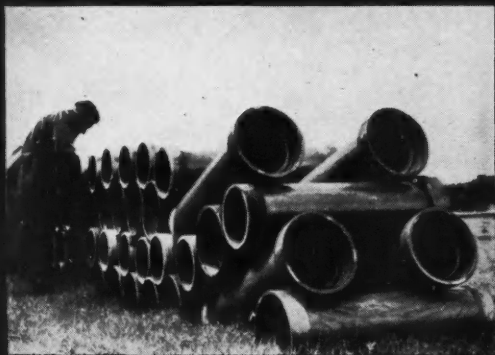


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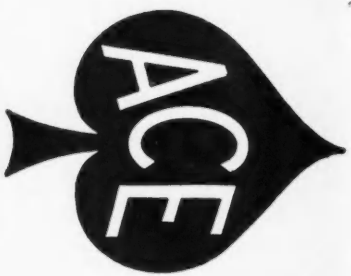
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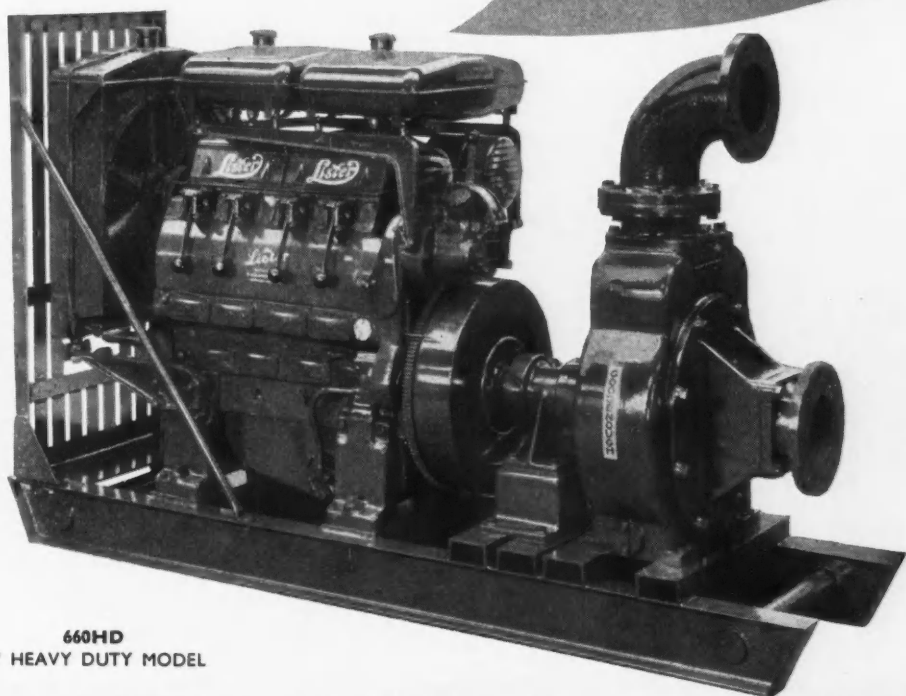


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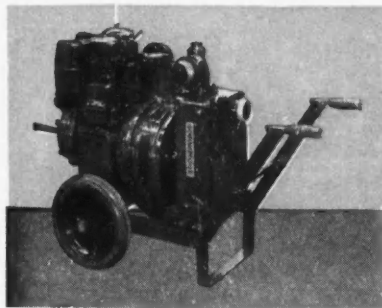
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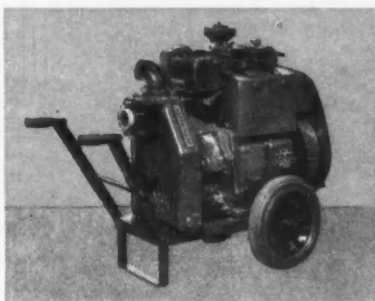


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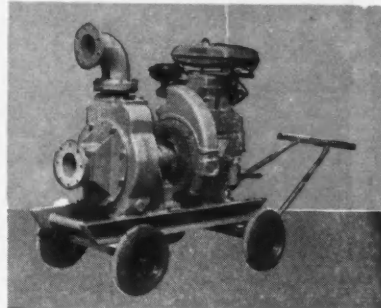
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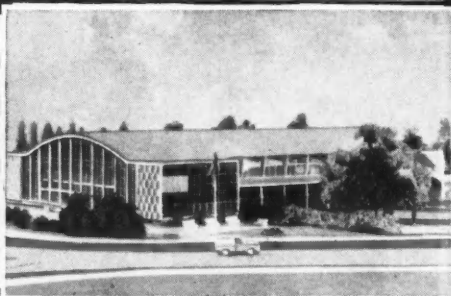
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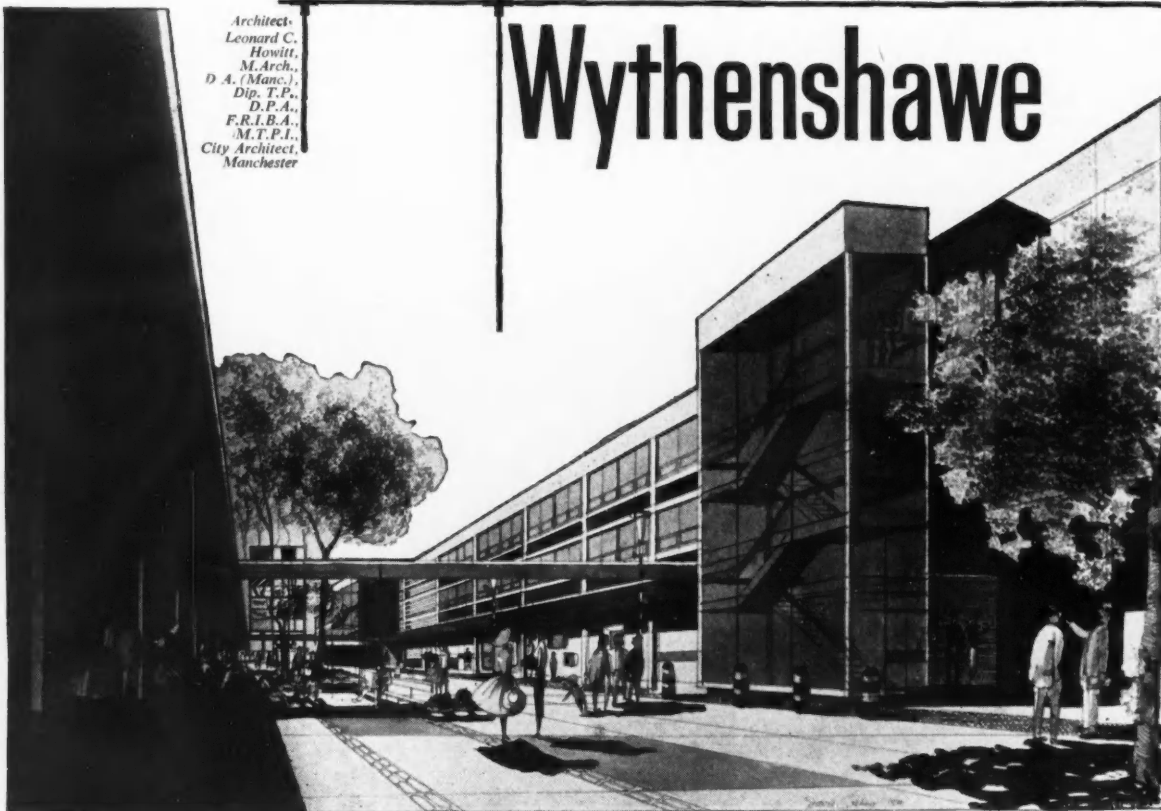
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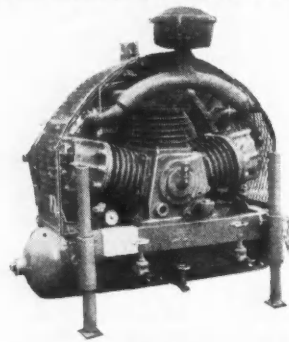
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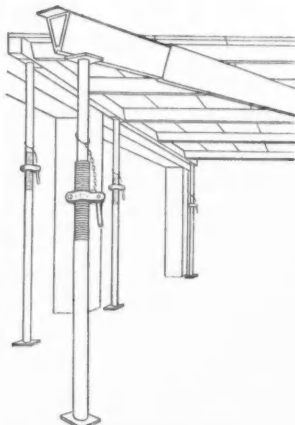
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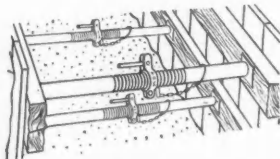
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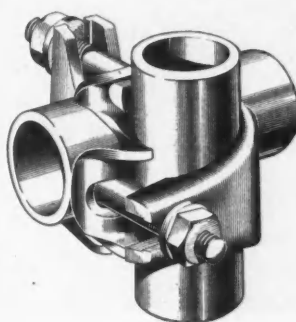
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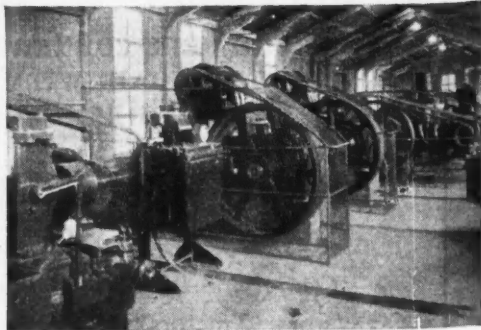
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Consolidated Pneumatic Claydiggers employed in one of the tunnels at Nuclear Power Station, Berkeley.

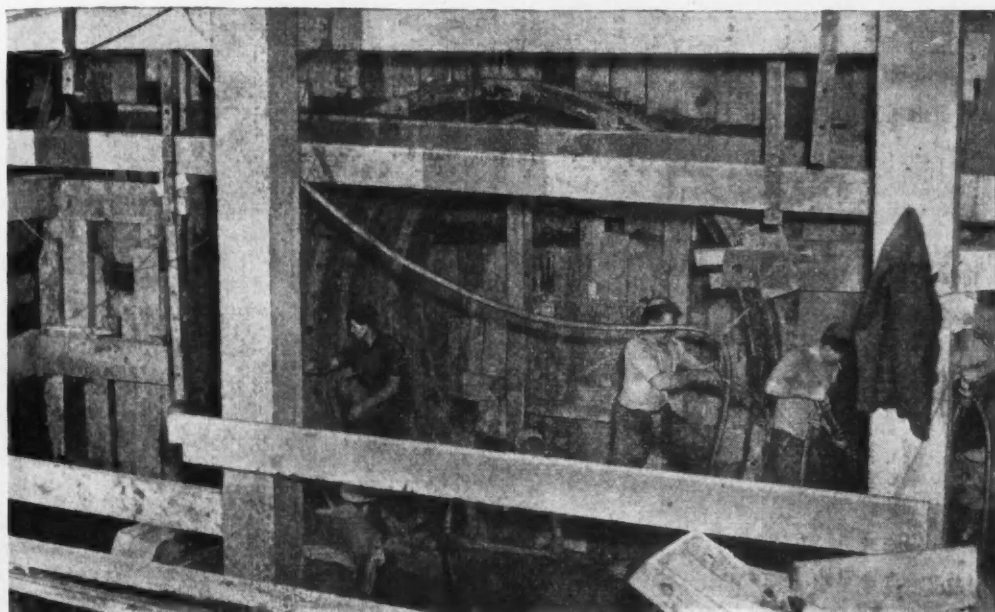


Operators using Consolidated Pneumatic Claydiggers in the face under the hood of a tunnelling shield in one of four 17-ft. 4-in. diameter tunnels constructed by Messrs. Balfour, Beatty & Co. Ltd., for Messrs. Stewarts & Lloyds in their Thistleton Ore Mine.



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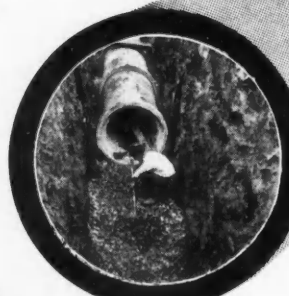
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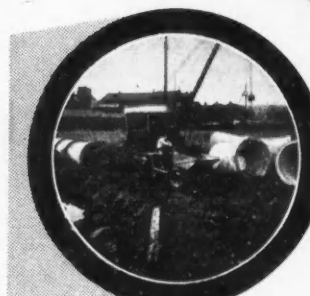


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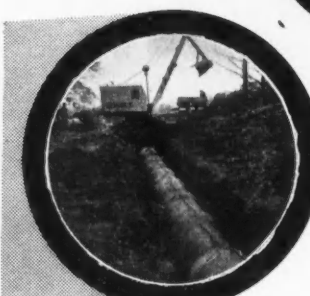
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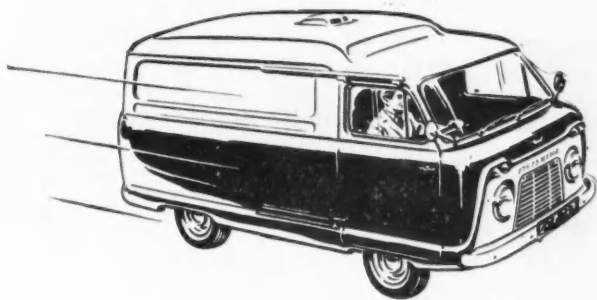
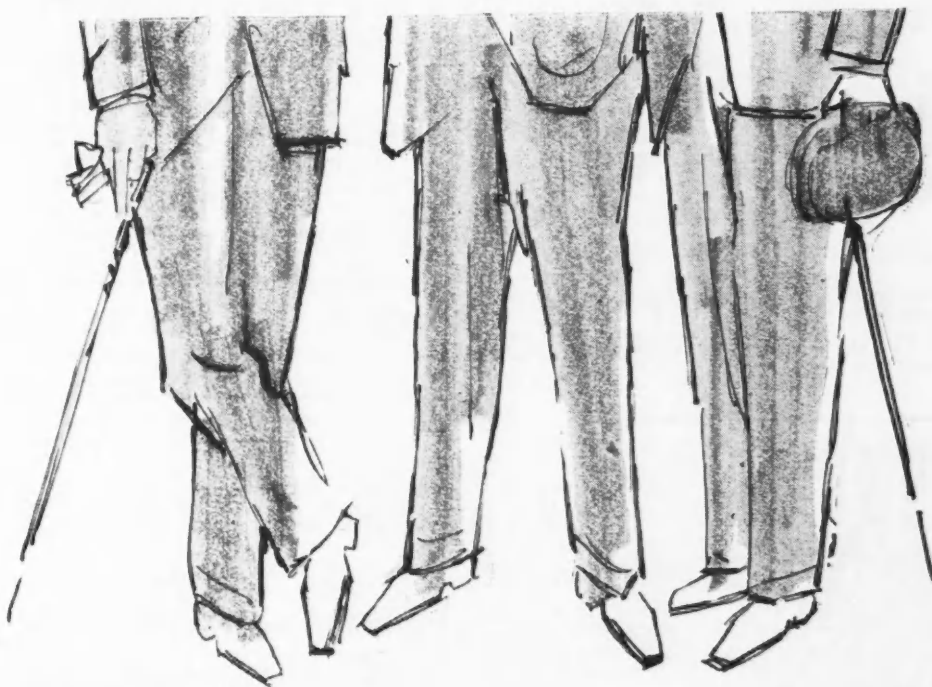
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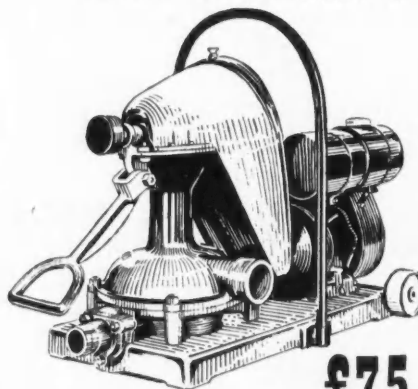
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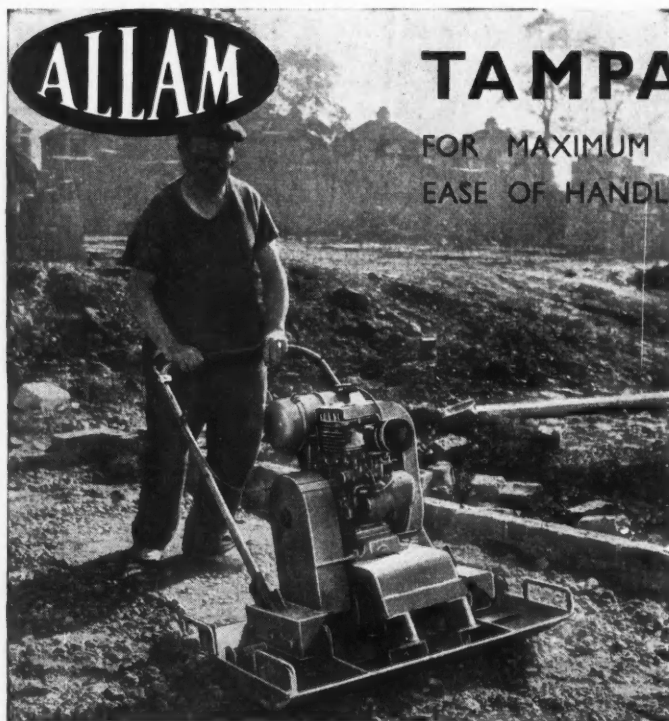
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core, ballast, concrete, etc.

Used on runways, oversites,
areas, roads, and trenches

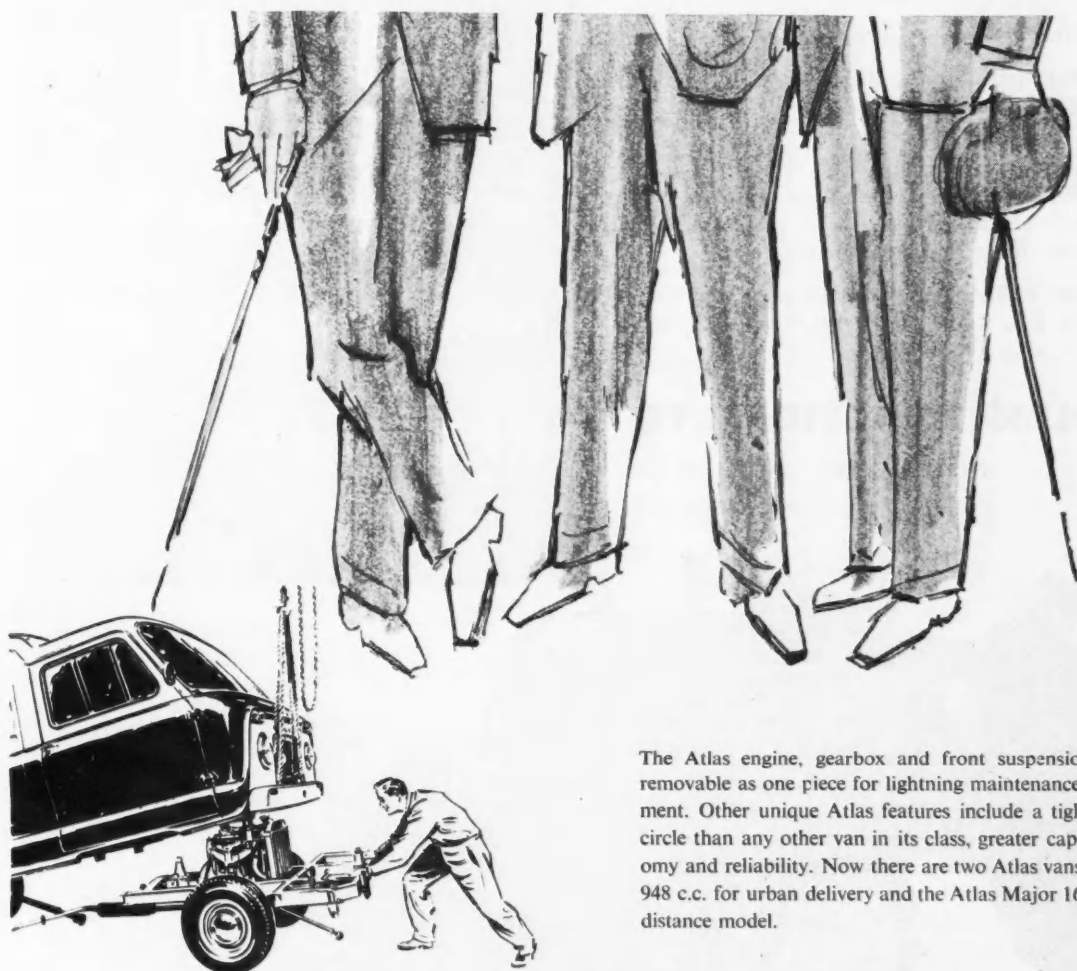
E. P. ALLAM & CO. LTD.

132-135 SLOANE STREET, S.W.1. TELEPHONE: SLOANE 9976 (5 lines)
SCOTLAND: 39 CAVENDISH STREET, GLASGOW, C.5. TELEPHONE: SOUTH 0186

STRANGFORD, LTD., Belfast and Dublin.
A. GUNN AND CO., Altrincham, Cheshire.
O. L. DAVIES, Port Talbot, Glam.
J. LEWIS (MACHINERY), LTD., Burslem,
Stoke-on-Trent.
CONCRETE ENGINEERING SERVICES, York
Road Industrial Estate, Wetherby, Yorks.
JOHN ROULSTONE, LTD., Newcastle upon
Tyne.
W. R. SELWOOD, Chandler's Ford, Hants.
MODERN PLANT SALES, LTD., Oldenbury,
Worcs.



It slashes service cost!



The Atlas engine, gearbox and front suspension unit are removable as one piece for lightning maintenance or replacement. Other unique Atlas features include a tighter turning circle than any other van in its class, greater capacity, economy and reliability. Now there are two Atlas vans—the Atlas 948 c.c. for urban delivery and the Atlas Major 1670 c.c. long distance model.

and when it comes to carrying
...the answer's an **ATLAS VAN**

See the Atlas Urban Delivery and the Atlas Major Long Distance models
 at the Commercial Show, Sept. 23rd — Oct. 1st.

STANDARD



TRIUMPH

Power *plus*

Mobility *plus*

Extreme

Manoeuvrability

These are features that make the **ROADLESS 4 W.D. ANGLED OZER** a most valuable machine for Builders, Civil Engineers, Earth Moving Contractors etc. Faster on the job . . . faster between jobs (*the drive to the front wheels can be disengaged and the machine driven on the public highway, saving the cost of a transporter*).

Brief Specification :

POWER UNIT: Fordson Power Major engine developing 51.8 b.h.p.

OVERALL DIMENSIONS: Length 14ft., width 7ft. 6in., height without cab 5ft. 6in., with cab 7ft. 9in.

WEIGHT: 4 tons 14cwt. 7lb.

BLADE: 7ft. 6in. wide x 28ins. deep with renewable cutting edge. Maximum lift 2ft. above tyre level. Maximum dig 6ins. below tyre level. Angle 25 degrees to either side.

STANDARD EQUIPMENT: Lights, front wheel weights, 9 x 24-4 ply front tyres, 11 x 36-6 ply rear tyres. Heavy duty clutch. Hand brake and engine hour meter.

ROADLESS TRACTION LTD

HOUNSLOW, MIDDLESEX

Telephone: HOUNslow 6421

No other wheeled tractor can match the **MANUEL-ROADLESS**

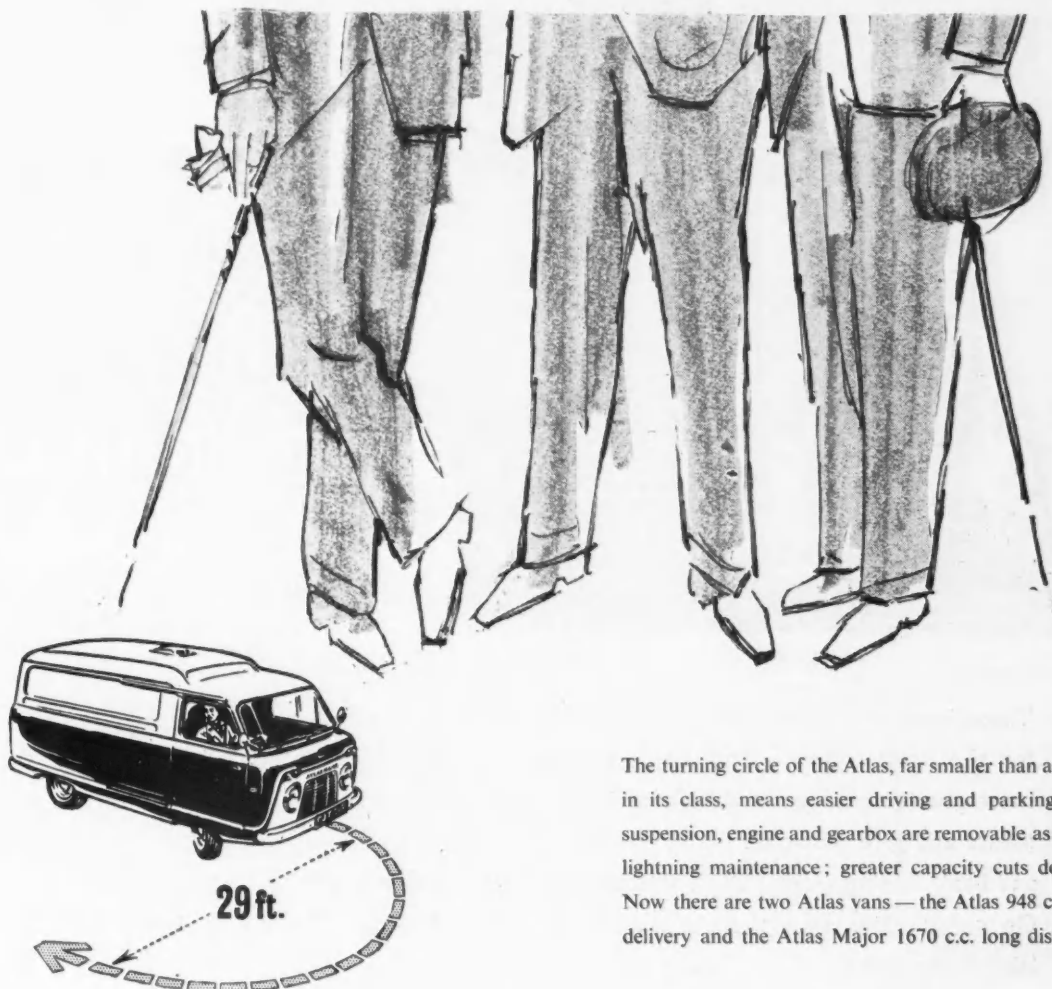
4 WD

for high work/cost ratio
manoeuvrability and speed
and rugged power





Smallest turning circle ever



The turning circle of the Atlas, far smaller than any other van in its class, means easier driving and parking. The front suspension, engine and gearbox are removable as one unit for lightning maintenance; greater capacity cuts delivery costs. Now there are two Atlas vans — the Atlas 948 c.c. for urban delivery and the Atlas Major 1670 c.c. long distance model.

and when it comes to carrying
...the answer's an **ATLAS VAN**

See the Atlas Urban Delivery and the Atlas Major Long Distance models
 at the Commercial Show, Sept. 23rd — Oct. 1st.

STANDARD



TRIUMPH

STANDARD-TRIUMPH GROUP, COVENTRY

LONDON SHOWROOMS: BERKELEY SQUARE

**Rugged
construction
for
heavy-
duty work...**



**... sensitive
controls
for fine
grading**



These impressive Wakefield Motor Graders are massively built workers, right for the heaviest jobs—and with a hydraulic system sensitive enough for the most precise grading. Wakefields incorporate the latest technical developments and give first-class performance on all grading, spreading, ditch cutting and bank sloping work. With attachments, they can scarify and bulldoze, too. On construction sites there's nothing to beat a Wakefield for saving time, labour and money.

WAKEFIELD

motor graders

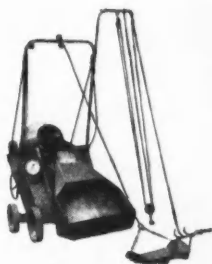
Made by CONSTRUCTION MACHINERY LTD., WAKEFIELD, ENGLAND. Distributors in most countries.

WF6063



7T HYDRAULIC

the new one-man mixer by Stothert & Pitt



Manual operation has been slashed to a minimum on this revolutionary small tilting mixer built by Stothert & Pitt—the 7T Hydraulic. Below are some of the outstanding features which enable this machine, operated by only one man, to produce high quality concrete at low cost in a remarkably short time. For further details please write for a fully descriptive leaflet.

HYDRAULIC SYSTEM The compact and powerful hydraulic system incorporated in the 7T Hydraulic uses high-pressure oil to feed the gear motor driving the drum and the hydraulic ram operating the skip.

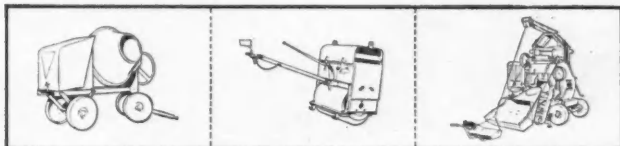
WATER CONTROL A large clearly marked dial and an easily-operated, quick acting valve ensure accurate measurement of water into the drum.

BATCH WEIGHING UNIT The easily replaceable integral hydraulic weighing equipment consists of a weigh capsule capillary tube and a pressure gauge with a large, clearly lettered dial.

DRUM DRIVE The hydraulic motor rotated drum with a new patented method of transmission forms a self-contained completely protected unit. The simple gearing results in a smooth vibration-free drive which considerably lengthens the life of the engine.

EASE OF DISCHARGE When discharging, maximum projection is given to the drum and ample clearance afforded behind the drum lip. This, combined with the discharge height of 3 ft. 6 in., enables a dumper to be filled to maximum capacity quickly and easily.

TRANSPORTABILITY The jib for the scoop can be easily lowered for transit, and the mast folded to the jib. Manoeuvrability is greatly simplified by Ackerman steering. Three point support eliminates stresses in the frame and reduces to a minimum any levelling up operations that may be necessary.



Other contractors' plant built by Stothert & Pitt includes (1) 3 1/2 T small tilting mixer. (2) Vibroll 28W hand-guided vibrating roller (3) 5NT concrete mixer.

Simple to operate



- ask the man who works one

Push-button controlled scoop and skip, clutchless drive and clearly marked dials and controls enable the 7T Hydraulic to be easily operated by one man.



STOTHERT & PITT LTD · BATH

London Office: 38 Victoria Street, S.W.1

DO IT ECONOMICALLY, EFFICIENTLY

WITH

NUFFIELD

UNIVERSAL

NUFFIELD UNIVERSAL THREE

3 cylinder, 2.55 litre B.M.C. diesel developing 42 b.h.p. Five-speed gearbox. Road speed 14 m.p.h.

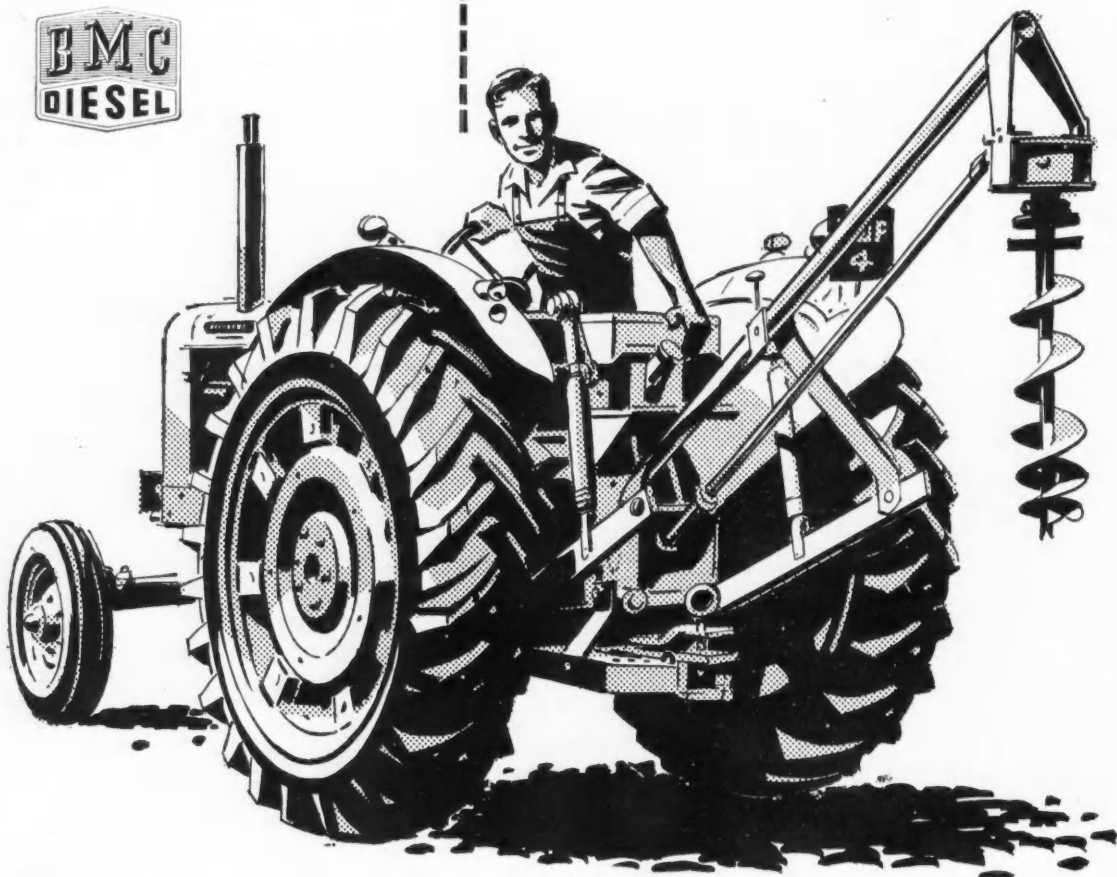
NUFFIELD UNIVERSAL FOUR

4 cylinder, 3.4 litre B.M.C. diesel developing 56 b.h.p. Five-speed gearbox. Road speed 17.3 m.p.h.

Both models available with hydraulic power, belt pulley, independent power take-off, differential lock, vacuum brakes and other extras.

Proved and perfected in the field of agricultural work, Nuffield Universal Tractors will operate with unfailing reliability and a minimum of attention. The famous B.M.C. diesel engines employed give high power output and outstanding fuel economy. Both the Nuffield Universal Three and Four models are widely adaptable to the needs of the industrial, civil engineering and municipal user and will do a wide variety of jobs, cheaply, quickly and well.

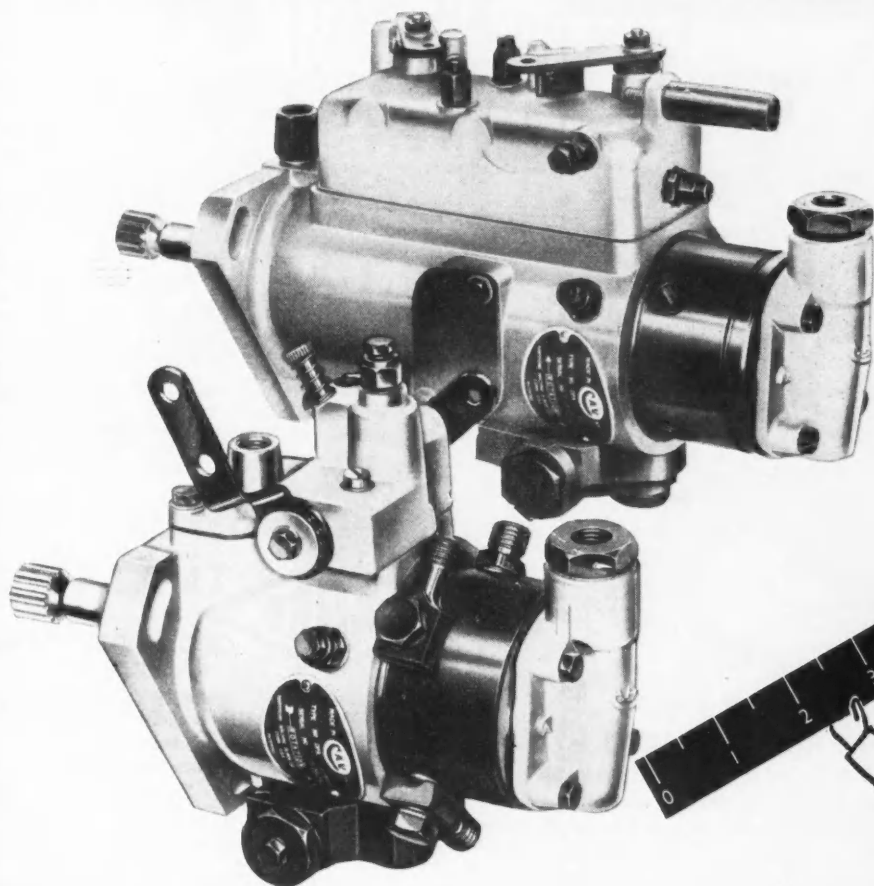
**BULLDOZING · GRADING · EXCAVATING
DITCHING · TRAILER WORK · WINCHING
POST HOLE DIGGING · DRIVING PUMPS
COMPRESSORS · CONCRETE MIXERS ETC.**



TWELVE MONTHS' WARRANTY
and backed by B.M.C. Service

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MORRIS MOTORS LTD., (AGRICULTURAL DIVISION) COWLEY, OXFORD. Overseas Business: Nuffield Exports Ltd., Oxford and 41-46 Piccadilly, London W.1



The Distributor type Fuel Injection Pump

MINIMUM SPACE REQUIRED FOR INSTALLATION

The DPA distributor type pump is not only very small and light. It is arranged for simple types of drive and can be fitted snugly against the side of the engine, making a very compact installation. Calibration and phasing are not required with this type of pump. The housing is filled with filtered fuel oil under slight pressure, and no special lubrication is required, while dirt and water are excluded. The DPA is ideally suited for high speed diesels.



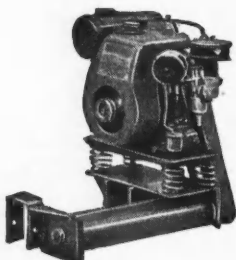
The World's Largest Manufacturers of

FUEL INJECTION EQUIPMENT

C.A.V. LIMITED, ACTON, LONDON, W.3.

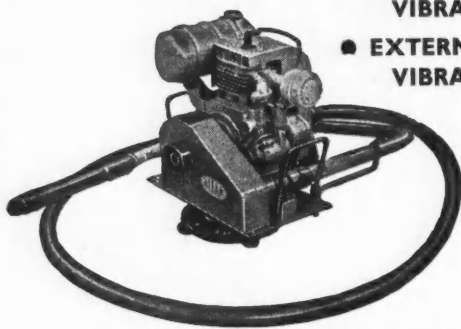
ALLAMHIRE FROM
THE MAKER

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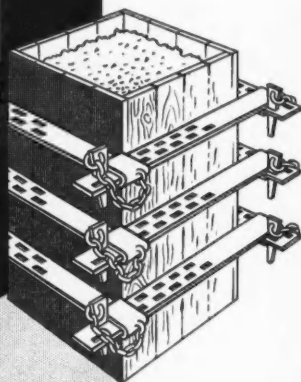


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ALLAM MACHINERY HIRE LTD.

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SCOTLAND: 39 Cavendish Street, Glasgow, G.5 Telephone: South 0186

**COLUMN
CLAMPS
PROPS
STRUTS**Send for details from
the manufacturers—**SCAFFOLDING****J. W. RAYLOR & CO. (ENGINEERS) LTD.**

59 Beavers Lane, Hounslow, Middx.

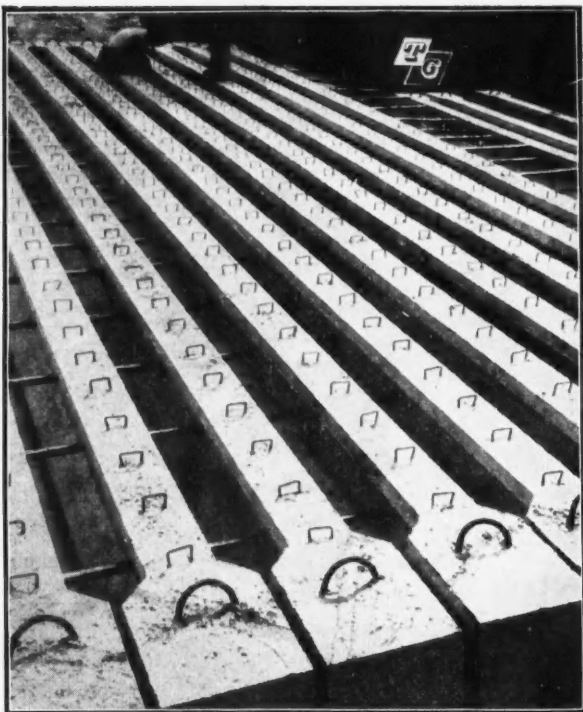
Telephone: Hounslow 8091/2.

**PRESTRESSED
PRECAST UNITS
FOR THE ENGINEER****UNITS FOR INDUSTRIAL PLANTS
ARCHITECTURAL PROJECTS, CIVIL
ENGINEERING & PUBLIC WORKS**

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S. Mehew, Esq., O.B.E., B.Sc., A.M.Inst.C.E.,
A.M.T.P.I., County Surveyor of Derbyshire,
showing 40'0" beams prestressed, pretensioned,
laid for the new bridge on the A.50 at Fostons,
Derbyshire.

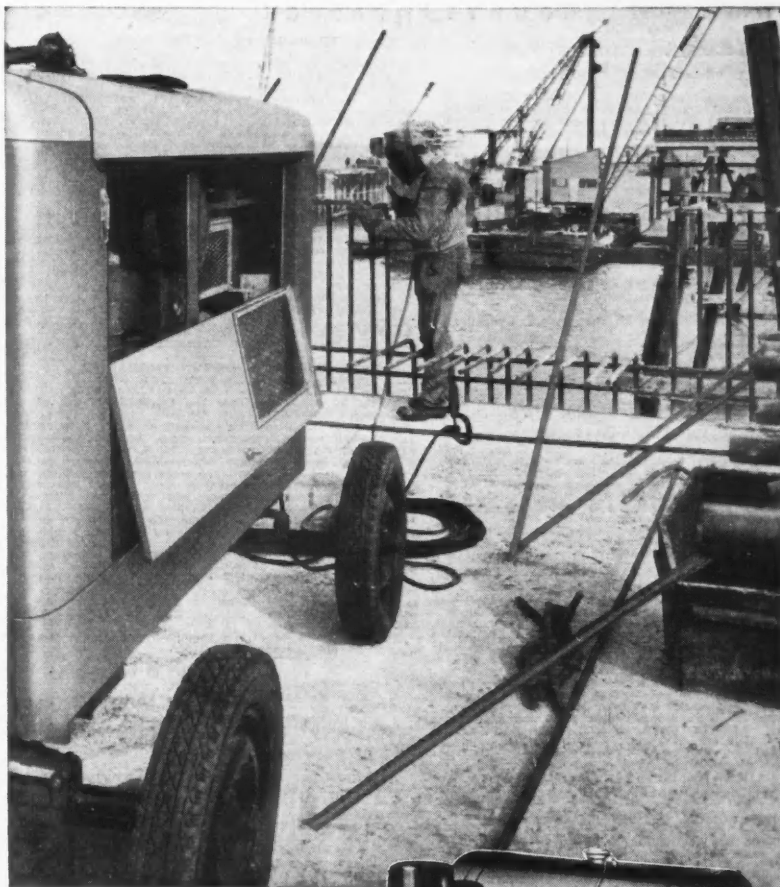
Main Contractors:— D. T. Bullock & Co. Ltd.
Civil Engineers, Aldridge, Staffs.

*Seven Works cover the country offering a complete service for the
production of precast units and prefabricated structures. We can
arrange for our representative in your area to call and discuss your
projects.*

**TARMAC VINCULUM LIMITED**

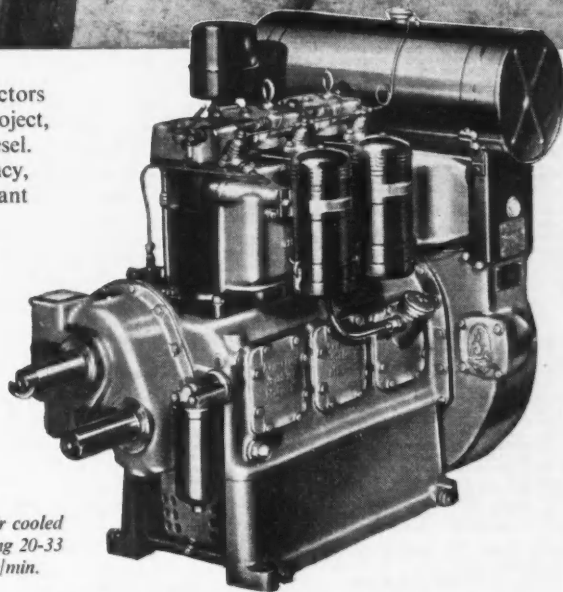
Ettingshall, Wolverhampton. Telephone: Bilston 41101 (fourteen lines).

**SPECIFY this
famous name
TO PROVIDE
IDEAL POWER
FOR PLANT
AND
EQUIPMENT**



This welding set, employed by Christiani Nielsen, contractors for the B.P. Trading Co. Angle Bay Tanker Terminal project, is powered by an Armstrong Siddeley AS3 air cooled diesel. This and others in the range provide the working efficiency, economy and continuous reliability so essential to the plant and equipment employed by builders and contractors. They are also widely used for agricultural machinery and marine auxiliaries.

Supplied in a range from 6½ to 33 b.h.p. and with one, two or three cylinders, these air cooled diesels are backed by the skill and experience of 65 years of engine design and production. Over 40 service engineers, resident throughout the country, are available to give any assistance required in the field; each is equipped with a service van and all spares likely to be required.



The AS3 three cylinder air cooled diesel capable of developing 20-33 b.h.p. at 1000 to 1800 rev/min.



ARMSTRONG SIDDELEY Air Cooled Diesels

MANUFACTURED AND SOLD BY **PETTERS LTD**

A Member of the Hawker Siddeley Group



STAINES • MIDDLESEX • ENGLAND • TEL: STAINES 51333

CNH/ASA/3

CONTRACTS

NOTTINGHAMSHIRE COUNTY COUNCIL.

SANDIACRE-STAPLEFORD BY-PASS.
FOOTBRIDGE NEAR TOTON LANE.

TENDERS are invited for the CONSTRUCTION of a REINFORCED CONCRETE FOOTBRIDGE of THREE SPANS over the Sandiacre-Stapleford By-pass (centre span 90ft., side spans 35ft. 3in.), on REINFORCED CONCRETE TRESTLES.

Contract documents may be obtained from the County Surveyor, Shire Hall, Nottingham, on payment of £5 deposit, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn and the return of the Contract documents.

Prospective tenderers may inspect the Contract documents and Drawings at the Offices of the County Surveyor during normal office hours.

Tenders should be delivered in the special envelope provided, to reach the undersigned by FRIDAY, 4th November, 1960.

The Council does not bind itself to accept the lowest or any Tender.

A. R. DAVIS,
Clerk of the County Council.

County Hall,
West Bridgford,
Nottingham.

METROPOLITAN BOROUGH OF CAMBERWELL.

STREET LIGHTING.

TENDERS invited for SUBSTITUTION of SODIUM for MERCURY LIGHTING comprising Group A' 200-Watt, sodium installations on steel columns: A.2216, 140 Units—112 new, 28 retained; A.2208, 12 Units—nine new, three retained; and REPLACEMENT of 140-Watt SODIUM with 200-Watt SODIUM on existing steel columns: A.2, 70 Units; A.202, 108 Units; A.215, 98 Units.

Particulars and Form of Tender from BOROUGH ENGINEER AND SURVEYOR, Town Hall, S.E.S. Closing date, 10th OCTOBER, 1960.

BOROUGH OF EALING.

STREET LIGHTING—NORTH CIRCULAR ROAD—ST. ANNE'S GARDENS TO UXBIDGE ROAD.

TENDER A.—SUPPLY of 88 140-W SODIUM LANTERNS, complete with Gears and Lamps.

TENDER B.—SUPPLY and ERECTION of 85 25ft. mounting height STEEL COLUMNS.

Details obtainable from Borough Engineer, Town Hall, Ealing, W.5, on payment of £5 for each Tender. Returnable on receipt of bona-fide Tenders.

Tenders to Town Clerk, Town Hall, Ealing, W.5, by Noon, 25th OCTOBER, 1960.

E. J. COPE-BROWN,
Town Clerk.

THE URBAN DISTRICT COUNCIL OF ABERDARE.

CONSTRUCTION OF SERVICE RESERVOIR.

TENDERS are invited on a fixed-price basis from suitably experienced contractors for the CONSTRUCTION of a 350,000-gallon capacity SERVICE RESERVOIR and ancillary PIPEWORK.

Tender documents may be obtained from the Council's Consulting Engineers, Messrs. C. D. C. BRAINE AND PARTNERS, 10tham's Buildings, 26/27 St. Mary Street, Cardiff, upon deposit of Three Guineas (cheques to be made payable to the Council), which sum will be returned upon receipt of a bona-fide Tender, not subsequently withdrawn.

Drawings may be inspected at the Offices of the Consulting Engineers, or of the Engineer and Surveyor to the Council at the Vestry Hall, Aberdare. Tenders, endorsed "Service Reservoir," in plain sealed envelopes, bearing no mark or indication of the sender, must reach me before Noon on MONDAY, 17th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

D. G. JAMES,
Clerk of the Council.

Town Hall,
Aberdare,
Glamorgan.

AMERSHAM RURAL DISTRICT COUNCIL.

ENGINEER AND SURVEYOR'S DEPARTMENT.

COCKPIT HOLE, HEATH END—DRAINAGE SCHEME.

The Council will shortly be inviting TENDERS for the ABOVE SCHEME, which comprises the Construction of 1,350yd. of 6in. dia. Sewer in Flexibly Jointed Concrete Pipe, and Lateral Connections to Property Boundaries, together with Permanent Reinstatement and all other ancillary works.

It is the Council's intention to invite Tenders from a selected number of contractors.

Contractors who wish to be considered should forward their names and addresses to the Council's Engineer and Surveyor, MR. J. GODBERE, A.M.I.Mun.E., Elmodesham House, 42 High Street, Amersham, Bucks., so as to arrive not later than First Post on 30th SEPTEMBER. Proof of the execution of similar work should be given.

H. E. BUXTON,
Clerk to the Council.

Elmodesham House,
42 High Street,
Amersham,
Bucks.

MERSEY RIVER BOARD.

BEDFORD-ATHERTON-PENLEACH DRAINAGE.

CONSTRUCTION OF LOW CULVERTS UNDER HOLDEN ROAD, LEIGH.

TENDERS are invited for the CONSTRUCTION of TWIN LOW-LEVEL CULVERTS 9ft. x 6ft. x 110ft. in length, in REINFORCED CONCRETE, under Holden Road, Leigh. The work to be carried out in heading. Specification, Bills of Quantities, Conditions of Contract and Form of Tender may be obtained from J. T. FIRTH, B.Eng., M.I.C.E., Engineer to the Mersey River Board, Liverpool Road, Great Sankey, Warrington, on payment of a deposit of £2 2s., to be refunded on receipt of a bona-fide Tender and return of all documents.

Tenders, in plain sealed envelopes endorsed "Holden Road Contract," must be received not later than MONDAY, 24th October, 1960.

The Board do not bind themselves to accept the lowest or any other Tender.

R. E. WOODWARD,
Clerk of the Board.

Liverpool Road,
Great Sankey,
Warrington.

CONTRACTS

BOROUGH OF COLCHESTER.
TO BUILDING CONTRACTORS.

TENDERS are invited for the ERECTION of PROPOSED ADMINISTRATION BLOCK, SHRUB END REFUSE TIP, Colchester.

Bills of Quantities and Form of Tender can be obtained from the Council's Architects, MESSRS. BAKER AND BURTON, 3 Church Street, Colchester, accompanied by a deposit of Two Guineas, which will be returnable on receipt of a bona-fide Tender. Drawings and other particulars can be seen at the Architects' Office.

Applications for Bills of Quantities and Form of Tender are to be made to the Architects not later than 1st OCTOBER, 1960.

Tenders, in plain envelopes marked "Tender for Proposed Administration Block—Shrub End Refuse Tip, Colchester," must be addressed to the undersigned and delivered by 12th OCTOBER, 1960.

N. CATCHPOLE,
Town Clerk.

Town Hall,
Colchester,
September, 1960.

WALTON AND WEYBRIDGE URBAN DISTRICT COUNCIL.

EXTENSION TO WALTON PARK AND CONSTRUCTION OF NEW CAR PARK.

TENDERS are invited for the CONSTRUCTION of the ABOVE WORKS.

The work comprises the Excavation of the Existing Soil, Laying Hardcore and Providing the Carriageway with a Tarmacadam Surfacing, the Construction of a Footpath with Bitumen Macadam Surfacing, the Laying of 12in. and 15in. dia. Surface Water Sewers, together with other incidental works.

The area of the Carriageway will be approx. 1,700 sq. yd., and that of the Car Park 6,800 sq. yd.

The Specification, Bills of Quantities and Form of Tender may be obtained from, and the Plans and Conditions of Contract inspected at, the Office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames.

Tenders are to be enclosed in plain sealed envelopes endorsed "Tender for Walton Park Extension and New Car Park," and delivered to the undersigned not later than 5 p.m. on TUESDAY, 4th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

EDWARD G. HUBBARD,
Clerk of the Council.

Council Offices,
Walton-on-Thames,
Surrey,
September, 1960.

WALTON AND WEYBRIDGE URBAN DISTRICT COUNCIL.

PRELIMINARY ROADWORKS—SANDY LANE HOUSING ESTATE.

TENDERS are invited for the CONSTRUCTION of SEWERS and PRELIMINARY ROADWORKS for the Sandy Lane Housing Estate.

The work comprises the Construction of approx. 710 lin. yd. of 15in. dia. Sewers, 110 lin. yd. of 6in. dia. Stoneware Foul Water Sewers; 1,080 lin. yd. of 18in. dia. and 360 lin. yd. of 9in. dia. Concrete Surface Water Sewers; and 3,850 sq. yd. of Hardcore Foundations to Roads; together with Manholes, Gullies, and other incidental works.

The Specification, Bills of Quantities and Form of Tender may be obtained from, and the Plans and Conditions of Contract inspected at, the Office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames.

Tenders are to be enclosed in plain sealed envelopes endorsed "Tender for Sandy Lane," and delivered to the undersigned not later than 5 p.m. on THURSDAY, 6th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

EDWARD G. HUBBARD,
Clerk of the Council.

Council Offices,
Walton-on-Thames,
Surrey,
September, 1960.

WALTON AND WEYBRIDGE URBAN DISTRICT COUNCIL.

RESURFACING FOOTWAYS.

TENDERS are invited for the RESURFACING of VARIOUS FOOTWAYS in the District.

The work comprises the Breaking-up and Excavation of Existing Footways, and the Resurfacing in Bituminous Macadam. The total area involved will be not less than 6,000 sq. yd.

The Specification and Tender may be obtained from, and the Conditions of Contract inspected at, the Office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames.

Tenders are to be enclosed in plain sealed envelopes endorsed "Tender for Resurfacing of Footways," and delivered to the undersigned not later than 5 p.m. on TUESDAY, 4th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

EDWARD G. HUBBARD,
Clerk of the Council.

Council Offices,
Walton-on-Thames,
Surrey,
September, 1960.

WALTON AND WEYBRIDGE URBAN DISTRICT COUNCIL.

GATE ROAD, WEYBRIDGE.

TENDERS are invited for the CONSTRUCTION of the ABOVE ROAD.

The work comprises the Excavation of the Existing Grass Verges, Laying of Hardcore and Bituminous Macadam Surfacing, the Construction of Footways with Bituminous Macadam, the Laying of a 9in. dia. Surface Water Sewer, together with other incidental work. The area of the Carriageway will be approx. 700 sq. yd.

The Specification, Bills of Quantities and Form of Tender may be obtained from, and the Plans and Conditions of Contract inspected at, the Office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames.

Tenders are to be enclosed in plain sealed envelopes endorsed "Tender for Gate Road, Weybridge," and delivered to the undersigned not later than 5 p.m. on TUESDAY, 4th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

EDWARD G. HUBBARD,
Clerk of the Council.

Council Offices,
Walton-on-Thames,
Surrey,
September, 1960.

CONTRACTS

BRECONSHIRE COUNTY COUNCIL.
ROADS AND BRIDGES DEPARTMENT.

DEMOLITION OF YSTRAD BRIDGE AND CASTLE BRIDGE, YSTRADGYNLAIS.

TENDERS are invited for the DEMOLITION of YSTRAD BRIDGE, YSTRADGYNLAIS, and of CASTLE BRIDGE, ABERCRAVE, and the retention by the contractor of the valuable scrap metal.

Particulars and contract documents may be obtained from the County Surveyor, Walton Offices, Brecon. Tenders, in plain envelopes, endorsed "Demolition of Bridges," must be delivered to the undersigned not later than MONDAY, 3rd October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

C. M. S. WELLS,
Clerk of the County Council.

County Hall,
Brecon.

BRECONSHIRE COUNTY COUNCIL.

ROADS AND BRIDGES DEPARTMENT.

SUPPLY OF PLANT.

TENDERS are invited for the SUPPLY of the FOLLOWING ITEMS of PLANT:—

- (1) Four Road Rollers (7-ton), Diesel.
- (2) Four Angle-blade Snow Ploughs.
- (3) Four Winter Grit Spreaders.
- (4) One Engine driven Concrete Vibrator (Poker Type).

Particulars and Forms of Tender from the County Surveyor, Walton Offices, Brecon.

Tenders, in plain sealed envelopes, endorsed "Tender for Plant," must be delivered to the undersigned not later than MONDAY, 3rd October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

C. M. S. WELLS,
Clerk of the County Council.

County Hall,
Brecon.

COUNTY BOROUGH OF DONCASTER.

PRIVATE STREET WORKS.

HIGHWAYS CONTRACT NO. 55.

TENDERS are invited for the MAKING-UP of PART of a PRIVATE STREET known as St. Wilfrid's Road (between Nos. 67-67, inclusive).

The proposed work comprises the Construction of approx. 110 lin. yd. of 6in. and 9in. S.W. Sewer, 220 lin. yd. of 6in. dia. Kerb, 87 sq. yd. of Coated Macadam Surfacing, including Broken Stone Foundation, 400 sq. yd. of Flagging to Footpaths, together with Brick Manholes, Gullies, and ancillary works.

Form of Tender, Specification and Bill of Quantities may be obtained on payment of a deposit of £3 3s., returnable on receipt of a bona-fide Tender, from the Borough Surveyor, 2 Priory Place, Doncaster, at whose Office Plans and Conditions of Contract may be inspected.

Tenders are to be received at the Office of the undersigned not later than 10 a.m. on SATURDAY, 15th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

H. R. WORMALD,
Town Clerk.

1 Priory Place,
Doncaster.

CITY OF WORCESTER.

ERECTION OF 108 DWELLINGS—WARNDON ESTATE.

TENDERS are invited for the ERECTION of THESE DWELLINGS, comprising Traditional Brick-built Two-storey Blocks of One-bedroom Flats.

Documents obtainable from City Engineer and Surveyor, 22 Bridge Street, Worcester, on deposit of Three Guineas (cheques payable to Worcester Corporation), which will be refunded after receipt of a bona-fide Tender and the return of Tender documents.

Tenders to be posted to the Town Clerk, to arrive not later than MONDAY, 17th October, 1960.

BERTRAM WEBSTER,
Town Clerk.

Guidhall,
Worcester.

CITY OF WORCESTER.

ERECTION OF 10 DWELLINGS—POWELL'S ROW DEVELOPMENT AREA, ST. JOHNS.

TENDERS are invited for the ERECTION of THESE DWELLINGS, comprising Traditional Brick-built Two-storey Blocks of One-bedroom Flats.

Documents obtainable from City Engineer and Surveyor, 22 Bridge Street, Worcester, on deposit of Three Guineas (cheques payable to Worcester Corporation), which will be refunded after receipt of a bona-fide Tender and the return of Tender documents.

Tenders to be posted to the Town Clerk, to arrive not later than MONDAY, 17th October, 1960.

BERTRAM WEBSTER,
Town Clerk.

Guidhall,
Worcester.

HAVERFORDWEST RURAL DISTRICT COUNCIL.

SPITAL SEWERAGE SCHEME.

TENDERS are invited, on a Fixed-price Basis, from competent civil engineering contractors for the CARRYING OUT of the SEWERAGE of SPITAL VILLAGE, and the CONSTRUCTION and COMPLETION of a SEWAGE DISPOSAL WORKS.

The Contract comprises approx. 1,400yd. of 6in. Stoneware Sewers with Manholes and appurtenant works, and a Disposal Works comprising Settling Tanks, Filters, Sludge Batters and Humus Tanks, with Fencing and Access Road.

Plans, Specification and Bills of Quantity may be obtained from the Council's Engineer and Surveyor, 8-10 Picton Place, Haverfordwest. No deposit is required but tenderers are expected to return all documents, and the Council reserves the right to charge for documents not so returned. Spital lies approx. five miles north-east of Haverfordwest.

Tenders, in plain envelopes marked "Spital Sewerage," should be received by me not later than FRIDAY, 4th November, 1960.

The Council does not undertake to accept the lowest or any Tender, and acceptance is subject to the approval of Welsh Office, Ministry of Housing and Local Government.

HENRY J. DICKMAN,
Clerk of the Council.

8-10 Picton Place,
Haverfordwest,
Pemb.

CONTRACTS

GLOUCESTERSHIRE COUNTY COUNCIL.

BIBSTONE DIVERSION—CROMHALL.

TENDERS are invited for WORKS on the ABOVE-MENTIONED SCHEME, which consists of the Construction of a 330 lin. yd. Diversion to the Existing Road, including Earthworks, Drainage, Fencing, 24ft. wide Carriageway, and ancillary works.

The completion date is 31st January, 1961. The works are situated at Cromhall, four miles south-west of Wotton-under-Edge, on B.4058 Bristol-Nailsworth Road.

Tender documents can be obtained from the County Surveyor, Quay Street, Gloucester, on payment of a deposit of £5 made payable to the Gloucestershire County Council, which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn. Tenders, in plain sealed envelopes endorsed "Bibstone Diversion" must be received by the County Surveyor, Quay Street, Gloucester, not later than 10 a.m. on WEDNESDAY, 5th October, 1960. The Council does not bind itself to accept the lowest or any Tender.

GU Y. H. DAVIS,
Clerk of the County Council.

Shire Hall,
Gloucester,
September, 1960.

BOROUGH OF STRATFORD-UPON-AVON.
ADDITIONAL BOREHOLE.

TENDERS are invited from experienced borehole contractors for the SINKING of a BOREHOLE at HYON HILL, WARWICK ROAD, Stratford-upon-Avon, and TESTING THE SAME for yield.

The Borehole will be lined with steel tubes, have a clear diameter of 15in., and will extend approx. 700ft. below ground level.

General Conditions of Contract, Specification, and Form of Tender may be obtained on application to the undersigned, on receipt of a deposit of £3, made payable to the Stratford-upon-Avon Corporation, which will be refunded on receipt of a bona-fide Tender and all documents issued by the Corporation.

Tenders, in plain sealed envelopes endorsed "Tender for Borehole," should be addressed and delivered to the Town Clerk, Municipal Offices, Rother Street, Stratford-upon-Avon, and received by not later than Noon on WEDNESDAY, 19th October, 1960.

The Council does not bind themselves to accept the lowest or any Tender.

P. C. SMART, M.I.C.E.,
Borough Engineer and Surveyor.

Municipal Offices,
Rother Street,
Stratford-upon-Avon,
September, 1960.

BOROUGH OF WREXHAM.

(a) ROAD IMPROVEMENT AT THE JUNCTION OF RUTHIN, BRADLEY AND VICTORIA ROADS.
(b) ROADWORKS AND SEWER—LIGHT INDUSTRIAL SITE, QUEENS PARK.

FIXED-PRICE TENDERS are invited for the ABOVE CONTRACTS.

Drawings and General Conditions of Contract may be inspected, and Specifications, Bills of Quantities and Forms of Tender obtained from MR. J. M. DAVIES, Borough Engineer and Surveyor, 31 Chester Street, Wrexham, on payment of a deposit of £2 2s. in respect of each Contract, which will be refunded on receipt of a bona-fide Tender.

Tenders, in the envelopes provided, must be sealed and delivered to the undersigned not later than 12 Noon on MONDAY, 3rd October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

PHILIP J. WALTERS,
Town Clerk.

Guildhall,
Wrexham,
September, 1960.

BOROUGH OF BARNES.

ROCKS LANE (A.306) SURFACE WATER SEWER.

TENDERS are invited from experienced civil engineering contractors for the ABOVE WORKS.

The works consist of 300 lin. yd. of 33in. dia. Concrete Tube Sewer in Rocks Lane (A.306); 63 lin. yd. of 27in. dia., 117 lin. yd. of 24in. dia., 90 lin. yd. of 21in. dia. and 160 lin. yd. of 18in. dia. Concrete Tube Sewer in Church Road (A.3003). Barnes, together with the Construction of Manholes, and ancillary works.

The Form of Tender, Bill of Quantities and Specification may be obtained from the undersigned, to whom they should be returned, in the envelope provided, not later than First Post, THURSDAY, 27th October, 1960.

W. R. SHEPHERD,
Borough Engineer and Surveyor.

Municipal Offices,
Sheen Lane,
East Sheen, S.W.14,
9th September, 1960.

RUGBY RURAL DISTRICT COUNCIL.

BINLEY COMMON SEWERAGE.

BINLEY WOODS ESTATE.

CONTRACT NO. 15.

TENDERS are invited for the LAYING of approx. 1 1/2 miles of 9in. and 6in. SALT GLAZED WARE SEWERS with Concrete Tube Manholes, 275yd. of 4in. ASBESTOS-CEMENT RISING MAIN, and the CONSTRUCTION of a PUMPING STATION.

The work consists of an Extension of the Council's existing Sewerage System serving Binley Woods Estate, which is located within the Parish of Binley, some three miles east of Coventry.

The General Conditions of Contract, Specification and Bill of Quantities may be obtained from the Council's Consulting Engineers, MESSRS. J. D. AND D. M. WATSON, M.M.I.C.E., 67 Tuford Street, Westminster, London, S.W.1, on and after 19th September, 1960, on payment of a deposit cheque of Ten Guineas, refundable only to contractors who submit bona-fide Tenders and return all documents and Drawings. Deposit cheques should be made payable to Rugby Rural District Council.

Sealed Tenders must be endorsed "Tender for Contract No. 15," bearing no name or mark indicating the sender, and delivered to the Office of the undersigned not later than Noon on MONDAY, 24th October, 1960.

The Council does not bind themselves to accept the lowest or any Tender.

H. A. WILDE,
Clerk of the Council.

Council Offices,
24 Warwick Street,
Rugby,
Warwickshire,
29th August, 1960.

CONTRACTS

METROPOLITAN BOROUGH OF CAMBERWELL.

TENDERS invited for the ERECTION of a STORES BUILDING, ADDITIONS to existing BUILDING and FUEL STORE, SUBSTRUCTURE for ERECTION of PLANT HOUSES and FRAMES at the HORTICULTURAL NURSERY at HONOR OAK PARK, S.E.25.

Condition, Specifications and Form of Tender may be obtained from the Borough Engineer, Town Hall, S.E.5, on a deposit of Two Guineas.

Sealed Tenders, in the envelope provided, must reach the TOWN CLERK, Town Hall, S.E.5, not later than 10 a.m. on WEDNESDAY, 19th October, 1960.

METROPOLITAN BOROUGH OF CAMBERWELL.

TENDERS are invited for SUPPLYING: (a) Simon Hydraulic PLATFORM, P30, on Bedford Diesel 3-ton chassis; (b) Eagle 3-stage TOWER WAGON, Type A, on Bedford Diesel 3-ton chassis; (c) Two TOWER VANS, Rawlinson B58 Type Tower on Bedford Petrol 10 1/2cwt. "CAL" VANS; (d) Two Bedford Petrol 10 1/2cwt. "CAL" VANS.

Tenders Forms on application to BOROUGH ENGINEER AND SURVEYOR, Town Hall, S.E.5. Closing date for Tenders, 27th SEPTEMBER, 1960.

BOROUGH OF WATFORD.

WATFORD PUBLIC BATHS.

REDECORATION AND ALTERATION.

TENDERS are invited for DECORATING and BUILDING WORKS at WATFORD PUBLIC BATHS. The works are to be carried out during December, 1960, and January and February, 1961, in conjunction with extensive heating and other specialist works.

The contractor will be required to co-ordinate specialist works as nominated sub-contractors and provide scaffolding and attendance. He will also be required to carry out general redecoration, certain minor building works, and hacking to wall surfaces.

Applications for documents, accompanied by a deposit of £2 2s., which will be returned on receipt of a bona-fide Tender, not subsequently withdrawn, must be made to Mr. F. C. SAGE, Borough Engineer and Surveyor, Town Hall, Watford, not later than 2 p.m. on MONDAY, 26th September, 1960.

Contract documents will be forwarded as soon as possible after that date.

Tenders will be required by 17th OCTOBER, 1960.
GORDON H. HALL,
Town Clerk.

Town Hall,
Watford,
September, 1960.

BOROUGH OF ROWLEY REGIS.

PROPOSED FOOTBALL PITCH—HADEN HILL PARK.

TENDERS are invited for the CONSTRUCTION of a FOOTBALL PITCH in Haden Hill Park, Rowley Regis.

The work comprises the Levelling and Grading of approx. 6,500 cu. yd. of Material and approx. 8,000 sq. yd. of Cultivating and Seeding, together with incidental works.

The Contract documents may be obtained from, and the Drawings inspected at, the Offices of either the Borough Engineer, Municipal Buildings, Old Hill, Staffs., or Parks Superintendent, Haden Hill Park, Old Hill, Staffs.

Tenders must reach the undersigned not later than Noon on FRIDAY, 7th October, 1960.

JOHN HILTON,
Town Clerk.

Municipal Buildings,
Old Hill,
Staffs.,
September, 1960.

CITY OF ROCHESTER.

ADDED AREA EARL ESTATE—STAGE (I.C).

FIXED-PRICE TENDERS are invited for the CONSTRUCTION of approx. 5,000 sq. yd. of REINFORCED CONCRETE CARRIAGEWAY and associated Kerbing and Slab Paving, together with Foul and Surface Water Sewers, Street Lighting, and ancillary works at the ABOVE SITE.

The Drawings and General Conditions of Contract may be inspected at the Office of J. A. PEEL, A.M.I.C.E., M.I.Mun.E., City Surveyor, 66 Maidstone Road, Rochester, during normal working hours. The Form and Conditions of Tender, Special Conditions of Contract, Specification and Bills of Quantities may be obtained at the above address on payment of a deposit of £2 2s., which will be refundable on receipt of a bona-fide Tender.

Tenders, in a plain sealed envelope endorsed "Added Area—Earl Estate—Stage (I.C)," must be received by the undersigned not later than 12 Noon on MONDAY, 17th October, 1960.

The Corporation do not bind themselves to accept the lowest or any Tender.

PHILIP H. BARTLETT,
Town Clerk.

Guildhall,
Rochester,
9th September, 1960.

BEESTON AND STAPLEFORD URBAN DISTRICT COUNCIL.

BEESTON SEWAGE WORKS.

REMOVAL OF SEWAGE SLUDGE.

Contractors are invited to TENDER for the LIFTING and CARTING of SEWAGE SLUDGE from the BEESTON SEWAGE WORKS, estimated at approx. 2,300 cu. yd., to specified points within the Urban District. Conditions of Contract and Forms of Tender are available from the Engineer and Surveyor, Town Hall, Beeston, upon payment of a deposit of £1 1s., and the closing date for receipt of Tenders is the 3rd OCTOBER, 1960.

H. D. JEFFRIES,
Clerk of the Council.

Town Hall,
Beeston,
Nottingham.

CHISLEHURST AND SIDCUP URBAN DISTRICT COUNCIL.

COLD ASPHALT SURFACING.

TENDERS are invited for RESURFACING 12,000 sq. yd. of BROMLEY ROAD, CHISLEHURST, and MAIN ROAD, SIDCUP. Documents from the Engineer and Surveyor, Manor House, Sidcup, on deposit of Two Guineas. Tenders must be submitted in the envelope provided, not later than 30th SEPTEMBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

T. W. FAGG,
Clerk of the Council.

Council Offices,
Sidcup Place,
Sidcup.

CONTRACTS

CARMARTHENSHIRE COUNTY COUNCIL.

AMMANFORD-NEATH ROAD, A.474.

WIDENING OF PONTAMMAN ROAD, AMMANFORD.

TENDERS are invited for the WIDENING, RE-GRADING and PART RECONSTRUCTION of the EXISTING ROAD for a distance of approx. 330 lin. yd.

Contract documents can be obtained, and Plans inspected, at the Offices of the County Engineer and Surveyor, County Hall, Carmarthen, on payment of a deposit of £2, which is returnable on receipt of a bona-fide Tender which is not subsequently withdrawn.

Tenders (with all documents), in a plain sealed envelope not bearing any name or mark indicating the sender, and endorsed "Pontamman Widening," must be returned to the undersigned not later than 12th OCTOBER, 1960.

The County Council does not bind itself to accept the lowest or any Tender.

W. S. THOMAS,
Clerk of the County Council.

County Hall,
Carmarthen,
September, 1960.

CARMARTHENSHIRE COUNTY COUNCIL.

(AMENDED ADVERTISEMENT.)

CARMARTHEN-LLANELLY ROAD, A.484.

WIDENING AT COMMISSIONERS BRIDGE, KIDWELLY.

TENDERS are invited from experienced public works contractors for the WIDENING of the ABOVE BRIDGE under tidal conditions.

The work includes the Construction of Mass Concrete Abutments and Piers, with Wing and Training Walls in Concrete, partly Masonry Faced and Reinforced Concrete Deck Slabs over Five Spans each 10ft. wide.

Foundation work includes the Driving, Part Burning Off, and Extraction of Steel Sheet Piling.

The Contract also includes for the Erection of Five Auto-cycloidal Flap Gates, together with the Widening of the existing Approach Roads for a distance of approx. 220 lin. yd. to a highway width of 36ft.

Contract documents can be obtained, and Plans inspected, at the Offices of the County Engineer and Surveyor, County Hall, Carmarthen, on payment of a deposit of £2, which is returnable on receipt of a bona-fide Tender which is not subsequently withdrawn.

Tenders (with all documents), in plain sealed envelope not bearing any name or mark indicating the sender, and endorsed "Commissioners Bridge," must be returned to the undersigned not later than 12th OCTOBER, 1960.

The County Council does not bind itself to accept the lowest or any Tender.

W. S. THOMAS,
Clerk of the County Council.

County Hall,
Carmarthen,
September, 1960.

COUNTY BOROUGH OF READING.

YIELD HALL CAR PARK—ALTERNATIVE ACCESS.

TENDERS are invited for the CONSTRUCTION and LAUNCHING of DUAL CARRIAGEWAY BAILEY BRIDGE over the RIVER KENNET, and the Construction of Concrete Abutments, Decking, and incidental works.

General Conditions and Drawings may be inspected, and Bill of Quantities, etc., obtained, for fee of Two Guineas (cheques payable to Reading Corporation) at Borough Surveyor's Office (P.O. Box 17), Town Hall, Reading. Fee refunded for bona-fide Tenders.

Tenders to be delivered to TOWN CLERK, Town Hall, Reading, by 12 Noon on 10th OCTOBER, 1960. No Tender considered unless enclosed in plain sealed envelope endorsed "Yield Hall Car Park—Bridging," but bearing no indication of sender.

The Corporation do not bind themselves to accept any Tender.

CITY OF BATH.

INNER RING ROAD—STAGES I AND II.

TENDERS are invited for the CONSTRUCTION of the ABOVE HIGHWAY, approx. length 760 lin. yd.

The Scheme provides for approx. 5,000 cu. yd. of EXCAVATION, Broken Stone Foundations, Hot Rolled Asphalt Surfacing, Kerbing, Flagged and Tarmacaded Footpath, S.W. Drainage, and ancillary works.

Plans and Conditions of Contract may be inspected at the Office of the City Engineer, Guildhall, Bath, from whom copies of the Specification, Bills of Quantities and Form of Tender may be obtained on payment of the sum of £2 2s., refunded on receipt of a bona-fide Tender.

Tenders must be delivered to the undersigned not later than 10 a.m. on SATURDAY, 15th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

JARED E. DIXON,
Town Clerk.

Guildhall,
Bath,
12th September, 1960.

GIPPING RURAL DISTRICT COUNCIL.

BRAMFORD SEWERAGE—CONTRACT NO. 2.

Tenders are invited from experienced contractors for the CONSTRUCTION of about 3,500yd. of 6in. dia. STONEWARE SEWERS, CONCRETE MANHOLES, VENTILATING COLUMNS, etc.

Copies of the Specification, Bills of Quantities and Form of Tender may be obtained from the Council's Consulting Engineers, MESSRS. LEMON AND BLIZARD, 59 Tuford Street, Westminster, S.W.1, on payment of a deposit of £5 5s. (Five Guineas) made payable to the Council, which will be returned on receipt of a bona-fide Tender and the return of the Contract documents. The Drawings may be inspected at the Engineer's Office or at the Council Offices.

The completed Form of Tender and priced Bills of Quantities are to be delivered to the undersigned, in a sealed envelope endorsed "Bramford Sewerage—Contract No. 2," before Noon on SATURDAY, 15th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

W. M. BENNETT,
Clerk of the Council.

Council Offices,
Needham Market,
Near Ipswich.

CONTRACTS

ROYAL COUNTY OF BERKSHIRE,
HIGHWAYS ACT, 1959—PART IX.

PRIVATE STREET WORKS.

TENDERS are invited for MAKING-UP ELLIS ROAD, Crowthorne.

The works comprised in this Contract are as follows: Approx. 5,000 sq. yd. of Hardcore and Bituminous Macadam Carriageway; 3,500 sq. yd. of Bituminous Macadam and Asphalt Footways; 1,500 lin. yd. of Kerbing; 500 lin. yd. of Highway Drain; and incidental works.

Drawings may be inspected at, and Specification, Bills of Quantities and Form of Tender obtained from, the Office of the COUNTY SURVEYOR, Shire Hall, Reading, on payment of a deposit of £2.

The deposit will be refunded on receipt of a bona-fide Tender.

Tenders, in envelope provided, must be returned by not later than 12 Noon on FRIDAY, 7th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

BOROUGH OF EPSOM AND EWELL.

RECONSTRUCTION OF FOOTPATHS.

The CORPORATION invite TENDERS from experienced public works contractors for the RECONSTRUCTION OF FOOTPATHS and ancillary works at VARIOUS SITES within the Borough.

Copies of the Conditions of Contract, Specification, Bill of Quantities, Conditions and Form of Tender may be obtained from the Office of MR. COLIN COBBETT, A.M.I.C.E., M.I.Mun.E., Borough Engineer and Surveyor, Town Hall, Epsom, during working hours, upon payment of a deposit of £2 2s. Deposits will be returned to contractors submitting a bona-fide Tender not subsequently withdrawn.

Tenders must be delivered to me at the address mentioned below not later than Noon on 3rd OCTOBER, 1960, and no Tender will be received and considered unless it is enclosed in a plain sealed envelope endorsed "Reconstruction of Footpaths." This envelope must not bear any mark or name indicating the sender.

The Corporation do not bind themselves to accept the lowest or any Tender.

EDWARD MOORE, Town Clerk.

Town Hall,
The Parade,
Epsom, Surrey,
September, 1960.

BOROUGH OF BEXHILL.

BIRK DALE LIGHTING.

SUPPLY AND ERECTION OF LAMP COLUMNS.

FIXED-PRICE TENDERS are invited for the SUPPLY, ERECTION AND PUTTING INTO SERVICE of a SYSTEM of 52 LIGHTING UNITS with mounting height of 25ft. The units to consist of R.C. Concrete Columns and Brackets with Side Entry Lanterns and all ancillary gear for use with 140-W Sodium Discharge Lamps.

Specification, Bills of Quantities and Forms of Tender may be obtained from the Borough Surveyor, Town Hall, Bexhill, Sussex, upon receipt of Two Guineas, which will be refunded on return of all documents supplied. Drawings and General Conditions of Contract may be inspected at the Office of the Borough Surveyor during normal office hours.

Tenders are to be delivered to the undersigned not later than 9.00 AM on SATURDAY, 22nd October, 1960, in a plain sealed envelope endorsed "Tender for Birk Dale Lighting," and not bearing any name or mark to indicate the sender.

The Council do not bind itself to accept the lowest or any Tender.

EDWARD SMITH, Town Clerk.

Town Hall,
Bexhill-on-Sea,
Sussex.

CUCKFIELD RURAL DISTRICT COUNCIL.

PROPOSED 28 DWELLINGS AT CRAWLEY DOWN.

CONTRACT NO. 149.

TENDERS are invited for the ERECTION of 28 DWELLINGS at Crawley Down.

Specification, Bills of Quantities and Form of Tender may be obtained from MR. A. HUTCHINGS, M.B.E., M.I.Mun.E., F.R.S.H., Engineer and Surveyor, on payment of a deposit of £2 2s. Deposits will be returned on receipt of a bona-fide Tender and the return of all documents.

Plans and Working Drawings may be inspected at the Council Offices during normal working hours.

Tenders, accompanied by all documents, enclosed in a plain sealed envelope and endorsed "Tender for Housing," should be addressed to the undersigned and delivered not later than 12 Noon on MONDAY, the 24th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

J. A. CHURCHILL, Clerk of the Council.

Rural Council Offices,
Boltro Road,
Haywards Heath,
Sussex,
13th September, 1960.

CUCKFIELD RURAL DISTRICT COUNCIL.

PROPOSED 29 FLATS AT HAYWARDS HEATH.

CONTRACT NO. 148.

TENDERS are invited for the ERECTION of a BLOCK of 29 FLATS at BOLTRO ROAD, Haywards Heath.

Specification, Bills of Quantities and Form of Tender may be obtained from MR. A. HUTCHINGS, M.B.E., M.I.Mun.E., F.R.S.H., Engineer and Surveyor, on payment of a deposit of £2 2s. Deposits will be returned on receipt of a bona-fide Tender and the return of all documents.

Plans and Working Drawings may be inspected at the Council Offices during normal working hours.

Tenders, accompanied by all documents, enclosed in a plain sealed envelope and endorsed "Tender for Flats," should be addressed to the undersigned and delivered not later than 12 Noon on MONDAY, the 24th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

J. A. CHURCHILL, Clerk of the Council.

Rural Council Offices,
Boltro Road,
Haywards Heath,
Sussex,
13th September, 1960.

CONTRACTS

ADMINISTRATIVE COUNTY OF
LEICESTER.

TENDERS are invited for the MAKING-UP of STRATFORD ROAD (part), Braunstone, under the Highways Act, 1959, Code of 1892.

Further details and Contract particulars obtainable from the County Engineer and Surveyor, County Offices, Grey Friars, Leicester, on deposit of £5.

Closing date: 13th OCTOBER, 1960.

JOHN A. CHATTERTON, Clerk of the County Council.

ADMINISTRATIVE COUNTY OF
LEICESTER.

TENDERS are invited for the MAKING-UP of RADFORD DRIVE (part), Braunstone, under the Highways Act, 1959, Code of 1892.

Further details and Contract particulars obtainable from the County Engineer and Surveyor, County Offices, Grey Friars, Leicester, on deposit of £5.

Closing date: 13th OCTOBER, 1960.

JOHN A. CHATTERTON, Clerk of the County Council.

ADMINISTRATIVE COUNTY OF
LEICESTER.

TENDERS are invited for the RECONSTRUCTION of a SECTION of ROUTE A.444 from ATTERTON towards SIBSON for a length of approx. 700yd.

The work consists of Widening and Realignment of the Existing Carriageway, Fencing, Drainage, and all ancillary works.

Further details and Form of Tender from the County Engineer and Surveyor, County Offices, Grey Friars, Leicester, on deposit of £5.

Closing date: THURSDAY, 13th October, 1960.

JOHN A. CHATTERTON, Clerk of the County Council.

ADMINISTRATIVE COUNTY OF
LEICESTER.

TENDERS are invited for the FOLLOWING ROAD RECONSTRUCTION SCHEMES:

(a) Reconstruction of a Section of Route A.453, near Appleby Magna Cross-roads. The work consists of the Widening and Realignment of the Existing Carriageway, with Drainage and all ancillary works, for a length of approx. 800yd.

(b) Reconstruction of a Section of Route A.444, Appleby Magna, from Austry Lane towards Twycross, for a length of approx. 880yd. The work consists of the Widening and Realignment of the Existing Carriageway, with Drainage and all ancillary works.

Further details and Form of Tender from the County Engineer and Surveyor, County Offices, Grey Friars, Leicester, on deposit of £5.

Tenders will be considered for all or any of the above works.

Closing date: THURSDAY, 13th October, 1960.

JOHN A. CHATTERTON, Clerk of the County Council.

HOLLAND (Lincs.) COUNTY COUNCIL.

RECONSTRUCTION OF TRUNK ROAD, A.17, FROM STIMPSONS CROSS TO BRIDGEHOUSE BRIDGE.

TENDERS are invited for the VARIOUS WORKS in the CONSTRUCTION of a NEW BRIDGE of an approx. skew span of 21ft. (angle of skew 50°), the RECONSTRUCTION and REALIGNMENT of approx. Half-mile of Approach Carriageways, and the Demolition of the Existing Bridge situated two miles east of Sutton Roundabout on Route A.17.

Contract documents and Drawings may be obtained from the County Surveyor upon payment of £5, returnable on submission of a bona-fide Tender.

Tenders, in sealed envelopes endorsed "Tender for Stimpsons Cross," must reach the undersigned not later than 12 Noon on MONDAY, 24th October, 1960.

The County Council do not bind themselves to accept the lowest or any Tender.

H. A. H. WALTER, Clerk of the County Council.

County Hall,
Boston, Lincs.,
13th September, 1960.

BOROUGH OF WEYMOUTH AND
MELCOMBE REGIS.

The CORPORATION proposes to invite TENDERS for the ERECTION of 26 OLD PEOPLE'S BUNGALOWS as infilling on Various Sites in the Borough, and are preparing a list of selected contractors. Contractors desirous of being included in this list are invited to apply to the Borough Engineer, 6 Putney Buildings, Weymouth, not later than First Post on TUESDAY, 4th October.

E. J. JONES, Town Clerk.

Town Clerk's Office,
Weymouth,
September, 1960.

CITY OF CARDIFF.

CITY SURVEYOR'S DEPARTMENT.

STREET LIGHTING—ERECTION CONTRACT NO. 6.

FIXED-PRICE TENDERS are invited for the ERECTION of about 1,260 CLASS "B" CONCRETE COLUMNS and COMPLETE INSTALLATION of 80-W MERCURY LANTERNS, and associated Gear. Main items of equipment will be drawn from Council's bulk supply contracts, and contractor will provide all labour and wiring necessary.

Conditions of Tender, Specification, Bills of Quantities and Drawings may be obtained from the City Surveyor, to whom application should be made, accompanied by a deposit of the sum of £2 2s. Cheques should be made payable to the Cardiff Corporation and crossed "Not Negotiable and Co."

The deposit will be refunded on receipt of a bona-fide Tender or the return of the Contract documents by the closing date.

Tenders will not be considered unless enclosed in a plain sealed envelope endorsed "Tender for Street Lighting—Erection Contract No. 6," addressed to the undersigned at the City Hall, Cardiff, and sent by Registered Post so as to be received not later than THURSDAY, the 6th October, 1960.

The envelope containing the Tender must not bear the name of, or any mark indicating the identity of, the tenderer.

The City Council do not bind itself to accept the lowest or any Tender.

S. TAPPER-JONES, Town Clerk.

City Hall,
Cardiff.

CONTRACTS

COUNTY BOROUGH OF BOLTON.

UNIFORM CLOTHING, 1961.

TENDERS invited for the SUPPLY of UNIFORMS, OVERCOATS and CAPS.

Specifications and Forms of Tender obtainable from Waterworks Engineer, Town Hall.

Tenders must be delivered to the undersigned by Noon, 7th OCTOBER.

PHILIP S. RENNISON, Town Clerk.

COUNTY BOROUGH OF BURY.

CLARENCE PARK EXTENSION.

TENDERS invited for the LEVELLING, DRAINING, CULTIVATION and SEEDING of Nine Acres of PLAYING FIELDS, together with ancillary works, at Clarence Park.

Tender documents obtained from, and Drawings inspected at, Borough Engineer's Office, Town Hall, Bury.

Tenders, in official envelope, must reach me not later than SATURDAY, 8th October, 1960.

EDWARD S. SMITH, Town Clerk.

Town Hall,
Bury,
13th September, 1960.

BOROUGH OF EDMONTON.

TENDERS are invited for the CONSTRUCTION of a LIBRARY and CLINIC at the JUNCTION of CHURCH STREET and RIDGE AVENUE, within the Borough.

A copy of the Drawings, Conditions of Tender, and Conditions of Contract may be inspected at the Office of the Borough Architect.

Applications for Form of Tender and Bills of Quantities, accompanied by a deposit of Two Guineas (which will be refunded only on receipt of a bona-fide Tender and other Contract documents), must be made to the Borough Architect, Town Hall, Edmonton, not later than First Post on WEDNESDAY, 28th September, 1960.

Tenders, sealed in the endorsed envelope provided, must be delivered to the undersigned not later than 12 Noon on TUESDAY, 18th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

H. BACKHOUSE, Town Clerk.

Town Hall,
Edmonton, N.9.,
21st September, 1960.

CITY OF BIRMINGHAM.

TO BUILDING CONTRACTORS.

CONTRACT 709—27 FOUR-STOREY DWELLINGS—TESSALL LANE, EGGHILL LANE ESTATE, NORTHFIELD.

CONTRACT 718—8 FOUR-STOREY DWELLINGS AND ONE SHOP—POOL FARM ESTATE, KINGS NORTON.

The HOUSEBUILDING COMMITTEE invite FIRM-PRICE TENDERS for the ERECTION of the ABOVE.

Bills of Quantities and Forms of Tender will be forwarded on payment of £2 2s. to the undersigned at the Office of A. G. SHEPPARD FIDLER, City Architect, Civic Centre, Birmingham, 1, to whom all cheques should be made payable. Applications should be made by 27th September, 1960. Conditions of Contract (which include the usual Fair Wages and Conditions of Labour Clause) may be seen at the City Architect's Office during normal working hours.

The deposits will be returned on receipt of bona-fide Tenders or on notification of inability to tender, together with the return of the documents not later than three days after the date for receipt of Tenders.

Tenders, enclosed in the envelope provided for the purpose, must be sealed and delivered to the Town Clerk's Office (Room No. B.31), Council House, Birmingham, 1, not later than 12 Noon on WEDNESDAY, the 26th October, 1960. Tenders received after that time will be rejected.

The Committee do not bind themselves to accept the lowest or any Tender.

T. H. PARKINSON, Town Clerk.

Council House,
Birmingham, 1.

CHERTSEY URBAN DISTRICT COUNCIL.

LYNE VILLAGE DRAINAGE.

CONTRACT NO. 6.

TENDERS are invited for the CONSTRUCTION of a PUMPING STATION and the LAYING of approx. 1,000 lin. yd. of 6in. dia. SPUN-IRON PUMPING MAIN. The whole of the works are to be carried out in accordance with the Drawings and Specification prepared by the Engineers, MESSRS. JOHN TAYLOR AND SONS, Artillery House, Artillery Row, Westminster, S.W.1.

Copies of the Contract documents may be obtained from the Engineers upon payment of £5 (cheque only), made payable to the Chertsey Urban District Council, which will be returned upon receipt of a bona-fide Tender.

The Drawings may be seen at the Offices of the Engineers, or at the Council Offices at The Orchard, Staines Lane, Chertsey.

Tenders, in plain sealed envelopes endorsed "Tender—Lyne Village Drainage," but not bearing any name or mark indicating the sender, should be delivered at my Office not later than Noon on MONDAY, 24th October, 1960.

The Council do not bind itself to accept the lowest or any Tender.

L. W. WAY, Deputy Clerk of the Council.

Council Offices,
Chertsey,
Surrey.

THE URBAN DISTRICT COUNCIL OF
ABERDARE.

PRIVATE STREET WORKS.

TENDERS are invited for PRIVATE STREET WORKS in BRYNHFFRYD, CWMAMAN, and its Approach ROAD.

Tender documents may be obtained from the Engineer and Surveyor at the Council on payment of Two Guineas, returnable on receipt of a bona-fide Tender and all loaned documents.

Tenders, in plain sealed envelopes bearing no mark or indication of the sender but endorsed "Private Street Works," must reach me on 20th OCTOBER, 1960.

D. G. JAMES, Clerk of the Council.

Town Hall,
Aberdare,
12th September, 1960.

CONTRACTS

CITY AND COUNTY OF THE CITY OF LINCOLN.

NEWARK ROAD/HYKEHAM ROAD JUNCTION IMPROVEMENT SCHEME.

TENDERS invited for this IMPROVEMENT. Approx. 600 lin. yd. Kerbing and Channelling; 3,900 sq. yd. of Cold Asphalt Surfacing, together with Footway and Surface Water Drainage. Applications for documents to City Engineer, Silver Street, Lincoln, accompanied by a deposit of Two Guineas (cheques payable to Lincoln Corporation), refunded upon receipt of a bona-fide Tender not subsequently withdrawn. General Conditions of Contract, Specification and Drawing may be inspected at the City Engineer's Office. Envelopes endorsed "Newark Road/Hykeham Road Junction Improvement Scheme," must be delivered to the undersigned not later than First Post, SATURDAY, 8th October, 1960. The Council do not bind themselves to accept the lowest or any Tender.

J. HARPER SMITH,
Town Clerk.

CITY OF LEICESTER.

CONSTRUCTION OF TEMPORARY CAR PARKS.

TENDERS are invited from contractors for the Annual Contract for SURFACING IMPROVEMENT AND MAINTENANCE WORKS TO CAR PARKS. Full details and Forms of Tender are available from the undersigned on payment of One Guinea, refundable on receipt of a bona-fide Tender. Tenders to be returned, in the official envelope provided, by 4.30 p.m. on FRIDAY, the 30th September, 1960.

JOHN L. BECKETT, M.I.C.E.,
City Surveyor.

Town Hall,
Leicester.

BEDWORTH URBAN DISTRICT COUNCIL.

ERECTION OF CARETAKER'S BUNGALOW, GREENHOUSES, GARAGES AND ANCILLARY BUILDINGS—MINERS' WELFARE PARK.

TENDERS are invited for the CONSTRUCTION AND ERECTION of: (a) CARETAKER'S BUNGALOW; (b) THREE GREENHOUSES (two 42ft. x 41ft., one 42ft. x 14ft.); together with Ancillary Buildings and Site Works.

Tender documents for either part or the whole of the proposed works may be obtained from the Council's Consultants, MESSRS. RICHARD SUDDELL AND PARTNERS, 2 Gwelford Place, London, W.C.1, upon receipt of a cheque for Two Guineas, payable to Bedworth Urban District Council, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn, and the return of all documents.

The Drawings may be examined at the Urban District Council Offices during normal working hours. Tenders, in the envelopes provided, bearing no mark or indication of the sender, should be delivered to the undersigned not later than 10 a.m. on SATURDAY, 15th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

S. G. DEEMING,
Clerk of the Council.

Council Offices,
Bedworth.

Nuneaton,
Warwickshire.

OGWEN RURAL DISTRICT COUNCIL.

PENTIR AND BRYN-Y-WAEN WATER MAINS EXTENSION.

DISTRIBUTION MAINS.

REFERENCE NO. 014—CONTRACT NO. 1.

TO CIVIL ENGINEERING CONTRACTORS EXPERIENCED IN MAINLAYING.

TENDERS are invited for the CONSTRUCTION of about 4.25 miles of A.C. MAINS and Fittings up to 6in. dia.

Contract documents may be obtained from the Consulting Engineer, MESSRS. HOWARD HUMPHREYS AND SONS, West Street, Epsom, Surrey (where the Drawings may also be seen between the hours of 10 a.m. and 4 p.m.) from Monday, 26th September to Friday, the 7th October, 1960, upon payment of Five Guineas payable to the Ogwen Rural District Council, which deposit will be returned on submission of a bona-fide Tender not subsequently withdrawn.

Tenders are to be made on the official form and must be delivered to the undersigned, in plain sealed envelopes endorsed "Tender for Mains Extension (014, Contract 1)," not later than Noon on MONDAY, the 24th October, 1960. The Council do not undertake to accept the lowest or any Tender.

HAYDN A. DAVIES,
Clerk to the Ogwen R.D.C.

Council Offices,
Craig Beuno,
Garth Road,
Bangor, Caerns.

KINGSBRIDGE RURAL DISTRICT COUNCIL.

KINGSTON SEWERAGE AND SEWAGE DISPOSAL.

TENDERS are invited from experienced contractors for the CONSTRUCTION AND MAINTENANCE of about 800yd. of 6in. dia. SEWERS AND MANHOLES, together with SEWAGE DISPOSAL WORKS, and all ancillary works, at Kingston, Devon, for, and on behalf of the Kingsbridge Rural District Council. Drawings may be seen at the General Conditions of Contract, Specification, Bills of Quantities and Form of Tender obtained from the Council's Consulting Engineer, MESSRS. LEMON AND BLIZARD, 1 Glen-side, College Avenue, Mannamoad, Plymouth, on and after Tuesday, 27th September, 1960, on payment of a deposit of Three Guineas, which is returnable on receipt of a bona-fide Tender not subsequently withdrawn, and the return of all drawings and documents to the Consulting Engineers.

Remittances should be made payable to the Kingsbridge Rural District Council. Tenders, on the form supplied, are to be received by the undersigned, in a plain sealed envelope endorsed "Tender for Kingston Sewerage," not later than Noon on MONDAY, 17th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender, and no payment will be made for any Tender submitted.

J. H. SAVIDGE, F.I.M.T.A., F.R.V.A.,
Clerk to the Council.

Council Offices,
Manor House,
Kingsbridge,
Devon.
14th September, 1960.

CONTRACTS

MINISTRY OF TRANSPORT.

KEXBY BRIDGE DIVERSION.

The MINISTER OF TRANSPORT invites TENDERS for the CONSTRUCTION of a REINFORCED CONCRETE 110ft. single span ARCH BRIDGE over the RIVER DERWENT, together with one-third of a mile of 24ft. wide Approach Road, including Earthworks, on the YORK-HULL TRUNK ROAD (A.1079) at KEXBY, Yorkshire.

Contract documents and Drawings may be obtained from the Consulting Engineers, L. G. MOUCHEL AND PARTNERS, Southbank House, Black Prince Rd., Albert Embankment, London, S.E.11, on payment of a deposit of £15 by cheque, made payable to the Minister of Transport. The deposit will be returned if a bona-fide Tender is submitted and not subsequently withdrawn. Tenders should be sent in plain sealed Registered Envelope, marked "Tender for Kexby Bridge Diversion," addressed to the Assistant Secretary, Highways Management and Services Division, Ministry of Transport, 21/37 Hereford Road, London, W.2, to arrive not later than 4 p.m. on WEDNESDAY, 2nd November, 1960.

The Minister does not bind himself to accept the lowest or any Tender.

G. G. D. HILL,
An Assistant Secretary.

CITY OF SALFORD.

PROPOSED ADMINISTRATIVE OFFICES FOR THE HEALTH DEPARTMENT—CRESCENT, SALFORD, 5.

FIRM-PRICE TENDERS are invited for the PROPOSED MULTI-STORY BUILDING of ADMINISTRATIVE OFFICES at Crescent, Salford, 5.

Conditions of Contract and Drawings may be inspected at, and Bill of Quantities and Form of Firm-price Tender obtained from, the City Engineer and Surveyor's Department, Town Hall, Salford, 3, on payment of a deposit of £5 5s., which will be returned on submission of a bona-fide Firm-price Tender not subsequently withdrawn.

Firm-price Tenders, on the prescribed form, sealed in the envelope provided, and bearing no other mark or identification, must be forwarded to the undersigned so as to be received not later than 10 a.m. on MONDAY, 24th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

(Signed) R. RIBBLEDALE THORNTON,
Town Clerk.

NEWTOWN AND LLANIDLOES RURAL DISTRICT COUNCIL.

LLANGURIG SEWERAGE AND SEWAGE DISPOSAL SCHEME.

The Council invites TENDERS from experienced contractors for the LAYING of approx. 1,060yd. of 6in. dia. G.S.S. SEWERS and SPUN-IRON PIPES, with Precast Concrete Manholes, etc., together with a SMALL SEWAGE DISPOSAL WORKS, comprising Sump Tank, Filter, Humus Tank, Sludge Drying Beds, and approx. 166yd. of 9in. dia. Spun-iron Outfall Pipe, together with ancillary works, at Llangurig, situated at five miles west of Llanidloes, on the Aberystwyth road.

Tendering documents can be obtained from the Consulting Engineers, MESSRS. W. HERBERT BATEMAN AND PARTNERS, Chesterfield House, Bath-easton, Bath, Somerset, on payment of a deposit of Three Guineas, payable to the Council, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn, and the return of all other tendering documents to the Consulting Engineers. The names and addresses of at least two Engineers under whose direction similar works have been carried out by the applicants must also be submitted at the time of application.

Tenders for this Contract will be on a Fixed-price Basis.

Drawings may be seen by appointment at the Office of the Council, or of the Consulting Engineers, but technical questions will be answered at the latter office only.

Tenders, on the form provided, together with Bill of Quantities, priced and extended in ink, should be delivered to the undersigned, not later than 9 a.m. on WEDNESDAY, 19th October, 1960, in a plain sealed envelope endorsed "Llangurig Sewerage."

The Council does not bind itself to accept the lowest or any Tender, and will not be responsible for any expenses incurred by the persons tendering.

GEORGE E. GRAY,
Clerk of the Council.

Town Hall,
Newtown.

Montgomeryshire.

13th September, 1960.

NEWTOWN AND LLANIDLOES RURAL DISTRICT COUNCIL.

DOLFOR AND STEPASIDE WATER SUPPLY SCHEME.

The Council invites TENDERS from experienced contractors for the LAYING of approx. 6,700 lin. yd. of 3in. dia. ASBESTOS-CEMENT WATER MAINS in Classes "B," "C," and "D," complete with all Valves, Fire Hydrants and Break Pressure Tank, at Dolfor and Stepaside.

The construction of a Brick Building approx. 15ft. x 8ft. 6in. internal to house pumping machinery and treatment plant.

Tendering documents can be obtained from the Consulting Engineers, MESSRS. W. HERBERT BATEMAN AND PARTNERS, Chesterfield House, Bath-easton, Bath, Somerset, on payment of a deposit of Three Guineas, payable to the Council, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn, and the return of all other tendering documents to the Consulting Engineers. The names and addresses of at least two Engineers under whose directions similar works have been carried out by the applicants must also be submitted at the time of application.

Tenders for this Contract will be on a Fixed-price Basis.

Drawings may be seen by appointment at the Office of the Council, or of the Consulting Engineers, but technical questions will be answered at the latter office only.

Tenders, on the form provided, together with Bill of Quantities, priced and extended in ink, should be delivered to the undersigned, not later than 9 a.m. on MONDAY, 4th OCTOBER, 1960, in a plain sealed envelope endorsed "Dolfor and Stepaside Water."

The Council does not bind itself to accept the lowest or any Tender, and will not be responsible for any expenses incurred by the persons tendering.

GEORGE E. GRAY,
Clerk of the Council.

Town Hall,
Newtown.

Montgomeryshire.

13th September, 1960.

CONTRACTS

IRLAM URBAN DISTRICT COUNCIL.

MAIN DRAINAGE SCHEME.

The Council invite TENDERS for the Construction of a Pumping Station and the LAYING of approx. 3½ miles of PRECAST CONCRETE SEWER PIPES from 15in. to 45in. in dia., together with Manholes and other ancillary works. Copies of the Specification, Bills of Quantities and certain Plans may be obtained on application to FRANK KAY EMERSON, Engineer and Surveyor, Council Offices, Irlam, Lancashire, on payment of a deposit of Five Guineas, returnable upon receipt of a bona-fide Tender.

Sealed Tenders, in the envelopes provided, should be delivered to the CLERK OF THE COUNCIL, Council Offices, Irlam, not later than 4th NOVEMBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

RUSHDEN URBAN DISTRICT COUNCIL.

SANDERS LODGE SEWERAGE.

The Council are prepared to consider TENDERS for a Contract which includes 1,270yd. of 9in. S.G.W. SEWER, 537yd. of 8in. S.I. PUMPING MAIN and the CONSTRUCTION of a SEWAGE PUMPING STATION.

Documents may be obtained from the Engineer and Surveyor at whose Office Drawings, etc., may be seen during normal office hours.

Tenders, in plain sealed envelopes endorsed "Tender—Sanders Lodge Sewerage," must be delivered to the undersigned not later than THURSDAY, 6th October, 1960.

A. G. CROWDY,
Clerk of the Council.

Council Buildings,
Rushden.

RUSHDEN URBAN DISTRICT COUNCIL.

TENDERS FOR ROADWORKS.

The Council are prepared to consider TENDERS for the CONSTRUCTION of FOOTPATHS and CARRIAGEWAY SURFACING at MORRIS AVENUE, involving approx. 882 sq. yd. of Diab Paving, etc., and 1,805 super. yd. of Carriageway Surfacing. Conditions of Contract, Specifications and Bills of Quantities may be obtained from the Engineer and Surveyor at whose Office the Drawings may be inspected.

Tenders must be delivered to me not later than 12 Noon on SATURDAY, 8th October, 1960, in plain sealed envelopes endorsed "Tender—Surfacing—Morris Avenue."

A. G. CROWDY,
Clerk of the Council.

Council Buildings,
Rushden.

THE URBAN DISTRICT COUNCIL OF HAVANT AND WATERLOO.

AMENDED ADVERTISEMENT.

FIXED-PRICE TENDERS are invited for the CONSTRUCTION of approx. 340 lin. yd. of 15in. dia. FOUL WATER SEWER and ancillary works connected therewith, at FISHERY LANE, Hayling Island. Conditions of Contract and Drawings may be inspected at the Office of the Engineer and Surveyor, 1 Park Road North, Havant, from whom Specifications, Bills of Quantity and Form of Tender may be obtained.

No Tender will be received except in a plain sealed envelope which must bear the word "Tender," followed by the subject to which it relates, but shall not bear any name or mark indicating the sender. Tenders must be delivered to the CLERK OF THE COUNCIL, Town Hall, Havant, not later than 12 Noon on THURSDAY, the 13th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

Firms who have already submitted a Tender for this work need not resubmit it.

THE URBAN DISTRICT COUNCIL OF HAVANT AND WATERLOO.

FIXED-PRICE TENDERS are invited for the MAKING-UP of NUTBOURNE ROAD, Hayling Island: the Excavation to Formation Level and Provision of 1,320 sq. yd. of 6in. Reinforced Concrete Carriageway, the Provision and Laying of 430 lin. yd. of Kerb, the Construction of 940 sq. yd. of Footway, 260 sq. yd. of Verges, 240 lin. yd. of 6in. and 9in. dia. Surface Water Sewer, and all ancillary works. Conditions of Contract and Drawings may be inspected at the Office of the Engineer and Surveyor, 1 Park Road North, Havant, from whom Specifications, Bills of Quantity and Form of Tender may be obtained.

No Tender will be received except in a plain sealed envelope which must bear the word "Tender," followed by the subject to which it relates, but shall not bear any name or mark indicating the sender.

Tenders must be delivered to the CLERK OF THE COUNCIL, Town Hall, Havant, not later than 12 Noon on THURSDAY, the 13th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

LLEYN RURAL DISTRICT COUNCIL.

TO CONTRACTORS.

WATER MAINS EXTENSIONS IN THE PARISHES OF ABERDARON, PISTYLL, BOTWYNOG, AND LLANYSUMDWAY.

The Lleyn Rural District Council invite FIRM-PRICE TENDERS from competent contractors for the LAYING of WATER MAINS complete with Valves and Fittings in accordance with Plans, Specification and Quantities prepared by the Council's Engineer, MR. D. LLOYD JONES.

Approx. lengths:
8,259 lin. yd.—2in. dia. Asbestos-cement Pipes.
790 lin. yd.—1½in. dia. Asbestos-cement Pipes.

770 lin. yd.—¾in. Alkathene Piping.

Form of Tender, Plans, Specification and Bills of Quantities may be obtained from the undersigned on payment of £3 3s., which will be refunded on receipt of a bona-fide Tender and the return of all documents.

Sealed Tenders, on the approved form endorsed "Water Mains Extensions," are to be delivered to the Clerk of the Council not later than 12 Noon on 10th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender, and any Tender selected by the Council will be subject to the subsequent approval of the Ministry of Housing and Local Government.

R. G. ROBERTS,
Clerk of the Council.

Metro Buildings,
Pwllheli,
Caerns.

CONTRACTS

BOROUGH OF NEWCASTLE UNDER LYME.

CHAIN LINK FENCING.

TENDERS are invited from specialist firms for the SUPPLY and ERECTION of approx. 250 lin. yd. of 9ft. high PLASTIC COVERED CHAIN LINK FENCING, with Concrete Posts, Gates, etc. Plans may be inspected, and Tender documents obtained, at the Office of the Borough Engineer and Surveyor, Lancaster Building, High Street, Newcastle, Staffs.

Tenders must be returned to me, in a sealed envelope, and endorsed "Chain Link Fencing, Bradwell," not later than 12 Noon on FRIDAY, 7th October, 1960.

C. J. MORTON,
Town Clerk.

BOROUGH OF PUDSEY.

CHASESIDE SHOVEL—HIGHWAYS DEPARTMENT.

TENDERS are invited for the SUPPLY of a CHASESIDE SHOVEL and Attachment.

Further details can be obtained from the Borough Surveyor, Town Hall, Pudsey.

No Tender will be received except in a plain sealed envelope bearing the words "Chaside Shovel," but shall bear no name or mark indicating the sender.

Tenders must be received by the undersigned not later than 9 a.m. on WEDNESDAY, 12th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

W. RICHARD CRUSE,
Town Clerk.

Town Hall,
Pudsey.

CITY OF NOTTINGHAM.

BILBOROUGH ESTATE.

The CORPORATION of the City of Nottingham invite TENDERS for the CONSTRUCTION of ROADS and SEWERS at CANWICK CLOSE and TREMAYNE ROAD, Bilborough Estate, Nottingham.

The works involve the Construction of a New Road approx. 55yd. in length, with Foul and Surface Water Sewers, and other minor works.

Tender documents may be obtained from MR. H. McD. LAWSON, B.Sc.(Eng.), M.I.C.E., M.I.Mun.E., Acting City Engineer and Surveyor, The Guildhall, Nottingham, on payment of £2, which will be returned on receipt of a bona-fide Tender.

Tenders, in the official envelope, are to be delivered not later than 5 p.m. on TUESDAY, 25th October, 1960.

The lowest or any Tender will not necessarily be accepted, and Tenders will only be considered from firms paying the local standard rate of wages, etc., and who conform to the working rules of the Nottingham district.

T. J. OWEN,
Town Clerk.

Guildhall,
Nottingham.

CITY OF BIRMINGHAM.

TO PUBLIC WORKS CONTRACTORS.

The PUBLIC WORKS COMMITTEE invite TENDERS on a Fixed-price Basis for a Measure and Value Contract for the CONSTRUCTION of FOOTPATHS and other ancillary works in the Eastern Division of the City (District 6).

Copies of the Specifications, Bills of Quantities and Forms of Tender may be obtained on payment of £2.2s. at the Office of SIR HERBERT J. MANZONI, City Engineer and Surveyor, Civic Centre, Birmingham, 1, to whom all cheques should be made payable. The deposit will be returned on receipt of a bona-fide Tender.

Tenders, enclosed in the envelopes provided for the purpose, must be sealed and delivered to the Town Clerk's Office (Room No. B.21), Council House, Birmingham, 1, not later than 12 Noon on WEDNESDAY, 5th October, 1960, when they will be opened. Tenders received after that time will be rejected. The Committee do not bind themselves to accept the lowest or any Tender.

T. H. PARKINSON,
Town Clerk.

Council House,
Birmingham, 1.

BRENTWOOD URBAN DISTRICT COUNCIL.

PRIVATE STREET WORKS.

UPLANDS ROAD.

TENDERS are invited for the MAKING-UP of this STREET.

Plan, Sections and Conditions of Contract may be inspected, and Specification, form of Tender, Bills of Quantities and Schedules obtained from D. A. DALLAS, M.B.E., A.M.I.C.E., Engineer and Surveyor, Council Offices, Brentwood, upon payment of a deposit of £1 1s., returnable upon receipt of a bona-fide Tender and the return of all documents.

Sealed Tenders, on the prescribed form, in envelopes endorsed "Tender for Private Street Works," and bearing no indication of the sender, must reach me by 10th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

CLEMENT BOOTH,
Clerk of the Council.

HORNCHURCH URBAN DISTRICT COUNCIL.

RESURFACING OF DISTRICT ROADS.

TENDERS are invited for the ABOVE WORKS, comprising: (1) The Scarifying and Resurfacing of Tudor Gardens; (2) The Resurfacing of Albany Road and Warren Drive; with Bitumen Macadam (1½ in. thick) and Fine Cold Asphalt (¾ in. thick).

The area involved is approx. 15,000 sq. yd.

The Conditions of Contract, Specification and Bills of Quantities may be obtained from the Office of the Engineer and Surveyor, Council Offices, Billet Lane, Hornchurch, upon payment of a deposit of Two Guineas, which will be refunded in the case of a bona-fide Tender upon acceptance of a Tender by the Council.

The documents and priced Bill of Quantities must be returned to the undersigned not later than Noon on MONDAY, 10th October, 1960, sealed in the envelope provided, which shall bear no indication of the identity of the person(s) tendering.

P. L. COX,
Clerk of the Council.

Council Offices,
Billet Lane,
Hornchurch.

CONTRACTS

ADMINISTRATIVE COUNTY OF LEICESTER.

TENDERS are invited for the FOLLOWING WORK:

- (a) Dunton Bassett (Route C.62)—Demolition of an Existing Wall and Construction of a new 9in. Brick Wall near the school access.
- (b) South Kilworth—Improvement at Junction of Route A.427 and Walcot Road, consisting of the Demolition of Walls and Outbuildings, and the Construction of a New Garage, New Walls, Road Widening, and Footpath Work.
- (c) Theddington (Route A.427)—Improvement at "S" Bend, consisting of the Demolition of Existing Wall and Fences, Construction of New Concrete Brick-faced Retaining Wall, Roadworks, and Footpath Work.

Further details and Form of Tender from the County Engineer and Surveyor, County Offices, Grey Friars, Leicester, on deposit of £5.

Closing date: THURSDAY, 13th October, 1960.

JOHN A. CHATTERTON,
Clerk of the County Council.

Grey Friars,
Leicester.

BOROUGH OF TIPTON.

- (1) BLOOMFIELD ROAD IMPROVEMENT—CONTRACT NO. 2.
- (2) IMPROVEMENT AT JUNCTION OF SEDGLEY ROAD WEST AND HIGH STREET.

TENDERS are invited for the EXECUTION of ONE or BOTH of the ABOVE WORKS, comprising the FOLLOWING:

- (1) The Widening of 130 lin. yd. of Existing Carriageway to 30ft. and Footways to 10ft., Laying Bitmac Base Course and Hot Rolled Asphalt Surfacing, and incidental drainage works.
- (2) The Construction of a Traffic Island, 90ft. long by 64ft. wide, together with the Widening of the Approach Roads thereto.

Contractors desirous of tendering are requested to send their names and addresses to the Borough Engineer and Surveyor, Municipal Buildings, Sedgley Road West, Tipton, accompanied by a deposit of Two Guineas for each work, returnable on receipt of a bona-fide Tender. Cheques should be made payable to Tipton Corporation.

The Form of Tender, Specification and Bill of Quantities will be forwarded, and the Drawings and General Conditions may be inspected at the above office.

The Corporation does not bind itself to accept the lowest or any Tender.

KENNETH W. MADIN,
Town Clerk.

Municipal Buildings,
Sedgley Road West,
Tipton.

BOROUGH OF CROSBY.

BOUNDARY DITCH PIPING SCHEME.

TENDERS are invited for the CONSTRUCTION of approx. 54 lin. yd. of 33in. and 152 lin. yd. of 30in. dia. CONCRETE SEWER in Trench, together with Manholes and ancillary works, at EDGEWOOD DRIVE, Thornton.

Copies of Specification, Bill of Quantities and Form of Tender may be obtained on application to the Borough Engineer and Surveyor at the address below, on payment of a deposit of £2, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn. Drawings of the work may be inspected at the Borough Engineer's Office.

Sealed Tenders, marked "Boundary Ditch Piping—Edgewood Drive, Thornton," to be delivered to the undersigned not later than Noon on 5th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

HAROLD O. ROBERTS,
Town Clerk.

Town Hall,
Waterloo,
Liverpool, 22.

CITY OF LEICESTER.

TENDERS are invited for the SUPPLY during the year ending on the 31st December, 1961, of the FOLLOWING:

Ironmongery, Hardware and Tools; Sewerage Ironwork Castings, etc.; Bricks, etc.; Stone-ware Pipes, etc.; Portland Cement; Granite Kerbs and Setts, Broken Granite and Coated Granite Macadam; Gravel Sand and Clinker Ashes; Concrete Pipes; Kerbs, Slabs and Edging; Road Reinforcement Fabric; Materials for Spraying Road Surfaces; and Lubricating Oils.

Forms of Tender and full details from City Surveyor's Costing Office, No. 1 St. Nicholas Street, Leicester.

Tenders, in the official envelope provided, to the undersigned not later than the 7th NOVEMBER, 1960.

JOHN L. BECKETT, M.I.C.E.,
City Surveyor.

Town Hall,
Leicester.

TROWBRIDGE URBAN DISTRICT COUNCIL.

PROPOSED ROAD IMPROVEMENT AT FROME ROAD (A.361), TROWBRIDGE.

TENDERS are invited for the ABOVE-MENTIONED WORKS, which extend over a section of road 500yd. in length and which include the FOLLOWING: Widening of Carriageway; Construction of New Kerb and Footpath; Reconstruction of Existing Footpath; Surface Water Drainage; Accommodation Works on Properties abutting on to the improvement works.

Tendering documents may be obtained from the Engineer and Surveyor, Town Hall, Trowbridge, on and after Monday, 26th September, on payment to the Council of a deposit of Two Guineas, which will be returned only on receipt of a bona-fide Tender and return of all documents. The General Conditions of Contract (I.C.E. Conditions) may be inspected at the Town Hall during normal office hours.

The Council do not bind themselves to accept the lowest or any Tender.

No Tender will be considered unless received on the Form of Tender and in the envelope provided, sealed, and delivered to the undersigned by Noon on MONDAY, the 17th October, 1960.

IEUAU EVANS,
Clerk of the Council.

Town Hall,
Trowbridge,
September, 1960.

CONTRACTS

COUNTY BOROUGH OF BRIGHTON.

WATER DEPARTMENT.

PATCHAM PUMPING STATION—CONTRACT NO. 7.
SUPPLY OF SPUN-IRON PIPES AND SPECIAL CASTINGS.

FIXED-PRICE TENDERS are invited for the SUPPLY and DELIVERY of approx. 400 lin. yd. of 24in. dia., 450 lin. yd. 15in. dia., 300 lin. yd. 12in. dia. FLEXIBLE JOINTED SPUN-IRON PIPES, together with approx. 70 tons of Special Castings 8in. dia. to 24in. dia.

Conditions of Contract, Schedule and Tender documents can be obtained from the Chief Engineer, 12 Bond Street, Brighton, upon deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender and return of all documents supplied. Tenders, enclosed in plain sealed envelopes not bearing any name or mark indicating the sender, and endorsed "Tender—Patcham Pipes," to be delivered to me before 1st NOVEMBER, 1960.

W. O. DODD,
Town Clerk.

Town Hall,
Brighton, 1,
September, 1960.

COUNTY BOROUGH OF BRIGHTON.

WATER DEPARTMENT.

PATCHAM PUMPING STATION—CONTRACT NO. 8.
SUPPLY OF SLUICE VALVES AND AIR VALVES.

FIXED-PRICE TENDERS are invited for the SUPPLY and DELIVERY of the FOLLOWING FLANGED SLUICE VALVES:
Four 18in. dia.; Four 15in. dia.; Six 12in. dia.; Nine 8in. dia., and Four Air Valves.

Conditions of Contract, Schedule and Tender documents can be obtained from the Chief Engineer, 12 Bond Street, Brighton, upon deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender and return of all documents supplied.

Tenders, enclosed in plain sealed envelopes not bearing any name or mark indicating the sender, and endorsed "Tender—Patcham Valves," to be delivered to me before 1st NOVEMBER, 1960.

W. O. DODD,
Town Clerk.

Town Hall,
Brighton, 1,
September, 1960.

CITY OF MANCHESTER.

NEW TRANSPORT HEAD OFFICE BUILDING.

The TRANSPORT COMMITTEE invite TENDERS for a FIVE-STORY BUILDING with an aggregate floor area of some 50,000 sq. ft. The site of the building is at DEVONSHIRE STREET, Manchester, 12, and is at present covered by a part of the Hyde Road Bus Garage. The Demolition of this part of the Bus Garage, amounting to a covered area of some 30,000 sq. ft., and the Building of a New Boundary Wall to the Bus Garage will form a part of the Contract.

The Office Building is designed with a Reinforced Concrete Frame and Precast and In-situ Concrete Floors. This structural work, together with the main foundation bases, will be let as a nominated sub-contract within the main Contract.

Tenders will be on a Fixed-price Basis. Tender documents will be issued on or about 17th October, 1960, and will be returnable by 10 a.m. on the 7th NOVEMBER, 1960.

It is anticipated that a start can be made on site early in 1961, and the Contract period will be fixed at 18 months.

Contractors wishing to tender for this work are asked to submit their names to the GENERAL MANAGER, Manchester Corporation Transport Department, 55 Piccadilly, Manchester, not later than 4th October, 1960.

UTTOXETER URBAN DISTRICT COUNCIL.

HEATH HOUSE ESTATE—SCHEME 1.

ERECTION OF 34 HOUSES.

TENDERS are invited for the ERECTION of 34 PERMANENT HOUSES, and incidental works.

Conditions of Contract, Bills of Quantities and Form of Tender may be obtained on application to the Surveyor to the Council, on deposit of the sum of £3 (Three Pounds), which will be returned upon the receipt of a bona-fide Tender not subsequently withdrawn and the return of all documents supplied for tendering purposes.

Copies of the Plans can be inspected during normal office hours, and by appointment only at the Offices of the Surveyor, Old Bank House Annexe, High Street, Uttoxeter.

Tenders, in plain sealed envelopes endorsed "Tender—34 Houses—Heath House Estate," are to be delivered to the undersigned not later than 12 Noon on the 14th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

JOHN H. KENNY,
Clerk of the Council.

Council Offices,
Old Bank House,
72 High Street,
Uttoxeter.

14th September, 1960.

UPPER STOUR VALLEY MAIN SEWERAGE BOARD, STOURBRIDGE, WORCS.

PAINTING AND GENERAL REPAIRS CONTRACT, 1960.

FIXED-PRICE TENDERS are invited from competent contractors for CARRYING OUT GENERAL REPAIRS AND PAINTING to various PROPERTIES, consisting of Farm Buildings, Cottages, Pumping Stations, Disposal Works, etc., throughout the Board's district.

Tender documents may be obtained from the Board's Engineer, 10C Hagley Road, Stourbridge, Worcs., upon payment of a deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender, not subsequently withdrawn, or the return of all documents.

Tenders must be delivered in a plain envelope, endorsed "Painting and General Repairs Contract, 1960," to reach the undersigned not later than Noon on MONDAY, 10th October, 1960. The Board do not bind themselves to accept the lowest or any Tender.

WILLIAM H. TURNER,
Clerk and Solicitor to the Board.

28-29 Wolverhampton Street,
Dudley, Worcs.

CONTRACTS

MIDDLESEX COUNTY COUNCIL.

EAST MIDDLESEX MAIN DRAINAGE.

CONTRACT EMR.2.

TENDERS are invited for the CONSTRUCTION OF WORKS at RAMMEY MARSH, near Enfield Lock, Middlesex, being a further stage in the development of a 120-acre site for use as a Sludge Disposal Works.

The works will include the Construction of Sludge Drying Beds covering an area of approx. 26 acres, including Underdrains and approx. 5½ miles of Concrete Walls, also approx. 8,000 lin. yd. of Cast-iron Pipework (6in. to 12in. dia.) and 4,500 lin. yd. of Stoneware and Concrete Drains (6in. to 12in. dia.); Roadworks, etc.

Tendering documents will be available on 23rd September, 1960, from the Consulting Engineers, J. D. AND D. M. WATSON, M.M.I.C.E., 67 Tufton Street, Westminster, S.W.1, upon payment of a deposit of Ten Guineas, which will be returned on receipt of a bona-fide Tender and the return of all documents. Cheques should be made payable to the Middlesex County Council.

The Council does not bind itself to accept the lowest or any Tender.

Tenders must be delivered in a plain package endorsed "Tender (Contract EMR.2.)" and delivered to the undersigned by Noon on MONDAY, 31st October, 1960.

KENNETH GOODACRE.

Clerk of the County Council.

County Council of Middlesex,
Guildhall,
Westminster, S.W.1.

CITY OF STOKE-ON-TRENT.

- (a) WATERLOO ROAD (A.50). CROSSLANE—IMPROVEMENT (NORTH STAFFORDSHIRE POTTERY FRONTAGE)
(b) LONDON ROAD (A.5006). STOKE—IMPROVEMENT (HIDE STREET TO SPARK STREET FRONTAGE).

The CORPORATION invite TENDERS for the ABOVE ROAD IMPROVEMENTS, including the FOLLOWING:

- 1,000 sq. yd. Concrete Foundation.
350 lin. yd. 15in. x 10in. Concrete Kerb and Channel.
2,650 sq. yd. Bituminous Macadam Base Coat and Hot Rolled Asphalt Surface.
1,150 sq. yd. Concrete Flag Paving.
75 lin. yd. 9in. dia. Glaze S.W. Pipe Storm Sewer.

Drawings and Conditions of Contract may be seen and Specification and Bills of Quantities obtained, upon application to the City Engineer and Surveyor, Town Hall, Stoke-on-Trent, on payment of £2 deposit. Such deposit will be returned if a bona-fide Tender is received.

Tenders must be delivered to the TOWN CLERK, Town Hall, Stoke-on-Trent, in the envelope provided, not later than 12 Noon, 12th OCTOBER, 1960.

HARRY TAYLOR.

Town Clerk.

ORPINGTON URBAN DISTRICT COUNCIL.

LEAVES GREEN MAIN DRAINAGE SCHEME.

FIXED-PRICE TENDERS are invited from contractors for the CONSTRUCTION OF THE ABOVE SCHEME, comprising 2,579 yd. of 9in. dia. and 780 yd. of 6in. dia. Force Water Sewers, also 380 yd. of 4in. dia. Spun-iron Rising Main Pump-house, Storage Tank and ancillary works. Contractors desirous of tendering for the work should submit their names to me not later than the 7th OCTOBER, 1960.

L. W. FREEMAN.

Engineer and Surveyor.

Civic Offices,
The Walnuts,
High Street,
Orpington, Kent.

EGHAM URBAN DISTRICT COUNCIL.

HIGHWAYS ACT, 1959.

COLLEGE AVENUE, IN THE EGHAM URBAN DISTRICT.

TENDERS are invited for the CONSTRUCTION OF VERGES, FOOTPATHS AND CARRIAGEWAYS (length approx. 250 yd.).

Contract documents and Plans may be obtained from the Engineer and Surveyor's Office, Fire Station Buildings, High Street, Egham, Surrey (Telephone Egham 3011).

Sealed Tenders, in a plain envelope, endorsed "Tender for College Avenue," must be delivered to the undersigned not later than 12 Noon on FRIDAY, 30th September, 1960, and any Tenders received after the prescribed time will not be considered.

The Council does not bind itself to accept the lowest or any Tender.

H. R. M. SMITH.

Clerk of the Council.

Council Offices,
155 High Street,
Egham, Surrey.

LEEK RURAL DISTRICT COUNCIL.

RUSHTON AND HEATON WATER SUPPLY.

CONTRACT NO. 1.

The Council invite TENDERS from experienced public works contractors for the CONSTRUCTION OF about 6,125 yd. of 5in., 2,875 yd. of 4in. and 8,975 yd. of 3in. dia. SPUN-IRON WATER MAINS, together with Fittings for same; a MASS CONCRETE RESERVOIR of 75,000 gallons capacity at HEATON; a BOOSTER PUMPING STATION at RUDYARD; and other incidental works in the Parishes of Rudyard, Heaton, Rushton Spencer and Rushton James.

Copies of the Plans, Conditions of Contract, Specification, Bills of Quantities and Form of Tender may be obtained from the Engineers, WILLCOX RAIKES AND MARSHALL, 33 Great Charles Street, Birmingham, 3, on or after the 28th September, 1960, on payment to them of a deposit of Five Guineas by cheque drawn in favour of the above Council, which will be refunded on receipt of a bona-fide Tender and return of all documents.

Applicants should forward details of their recent experience in this kind of work at the same time as they apply for the documents.

The Tender, on form supplied, is to be delivered to the undersigned, in the envelope provided, not later than 12 o'clock Noon on WEDNESDAY, 28th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

Dated this 15th day of September, 1960.

(Signed) M. DANIELS.

Clerk to the Council.

6 Russell Street,
Leek.

CONTRACTS

CAERNARVONSHIRE COUNTY COUNCIL.

TENDERS are invited for SUPPLYING and/or LAYING BY BARBER-GREENE or SIMILAR MACHINE (complete with two operators) of the FOLLOWING:

- (a) Bituminous Macadam Base Course.
(b) Bituminous Macadam Wearing Course.
(c) Hot Rolled Asphalt.

at various sites in the county. The works to be carried out between October, 1960, and 31st March, 1961.

Forms and Conditions of Tender from COUNTY SURVEYOR, County Offices, Caernarvon.

Closing date: 3rd OCTOBER, 1960.

BOROUGH OF MALDON (ESSEX).

MAIN SEWERAGE—CONTRACT NO. 4.

TENDERS, on a Fixed-price Basis, are invited for the EXECUTION OF THE FOLLOWING WORKS in the PARISH OF ST. MARY, Maldon, in the southern part of the Borough:

- (a) Approx. 580 yd. of 24in., 710 yd. of 18in., 410 yd. of 15in., 650 yd. of 9in. and 610 yd. of 6in. Concrete and Glazed Stoneware Sewers;
(b) 29 Concrete Tube Manholes;
(c) Brick Overflow Chamber;
(d) Minor Reconstruction to Existing Brick Manholes.

Copies of the Specification, Bills of Quantities and Form of Tender may be obtained from the Engineers, MESSRS. GRANTHAM, BRUNDELL AND FARRAN, 20 South Parade, Doncaster, on payment of a deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender. Drawings may be inspected at the Office of the Engineers or at the Municipal Offices, Maldon.

Tenders, in sealed envelopes endorsed "Main Sewerage—Contract No. 4," must be delivered to the undersigned not later than the First Post on 18th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

K. C. ROBERTSON.

Town Clerk.

Municipal Offices,
Maldon, Essex.

BOROUGH OF TORQUAY.

PROPOSED WIDENING OF SECTIONS OF SHIPWAY LANE AND COLLATON ROAD (LENGTH 810 YD.), INCLUDING SURFACE WATER DRAINAGE AND ACCOMMODATION WORKS.

TENDERS are invited from experienced contractors for the ABOVE WORKS.

Drawings may be inspected at the Borough Surveyor's Office.

Bills of Quantities, Specification, Conditions of Contract, and Forms of Tender may be obtained from the Borough Engineer, Town Hall, Torquay, upon payment of £5 5s., which will be refunded on receipt of a bona-fide Tender.

Tenders, which must be submitted in the manner indicated in the Contract documents, must reach the Town Clerk not later than Noon on SATURDAY, 15th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

T. ELVED WILLIAMS.

Town Clerk.

Town Hall,
Torquay,
15th September, 1960.

CITY OF CAMBRIDGE.

FOUL SEWER EXTENSION—LONG ROAD.

TENDERS are invited for the CONSTRUCTION OF approx. 95 lin. yd. of 9in. S.G.W. PIPE at a depth of approx. 20ft., together with One Precast Concrete Manhole.

Applications for the Specification, Drawing, Bills of Quantities and Form of Tender must be made to the City Engineer and Surveyor, The Guildhall, Cambridge.

Tenders must be received by 3 p.m. on the 14th OCTOBER, 1960.

Applications must be accompanied by a deposit of Two Guineas, which will be returned on receipt of a bona-fide Tender.

The lowest or any Tender will not necessarily be accepted.

ALAN H. I. SWIFT.

Town Clerk.

The Guildhall,
Cambridge.

September, 1960.

LITTLEBOROUGH URBAN DISTRICT COUNCIL.

The above Council invite TENDERS for the ERECTION OF ONE BLOCK OF EIGHT 1-BEDROOM FLATS, together with ancillary works, at the CALDERBROOK ROAD ESTATE, Littleborough.

The Drawings may be inspected at the Office of MR. F. LINDOP, Architect and Surveyor, Bridge Street, Todmorden, from whom copies of the Specification, General Conditions, Bill of Quantities and Form of Tender may also be obtained.

No Tender will be received except in a plain sealed envelope endorsed "Tender for Houses," which must not bear any name or mark indicating the sender.

Tenders, on the prescribed form, sealed and endorsed as above, must be delivered to the undersigned not later than 12 o'clock Noon on SATURDAY, 8th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

R. C. CLOUGH.

Clerk of the Council.

Council Offices,
Littleborough.

21st September, 1960.

CALNE AND CHIPPENHAM RURAL DISTRICT COUNCIL.

TENDERS are invited for the CONSTRUCTION OF approx. 2,400 yd. of 3in. and 4in. ASBESTOS-CEMENT WATER MAINS, at BOX, SUTTON BINGER and CORSHAM.

Copies of the Plans, Specification and Bills of Quantities and Form of Tender can be obtained from the Council's Engineer at the address below, against a deposit of £2 2s., returnable on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, sealed in the envelopes provided, are to be delivered to the undersigned by Noon, 15th OCTOBER, 1960.

The Council does not bind itself to accept the lowest or any Tender.

D. P. HARRISON.

Clerk of the Council.

Bewley House,
Marshfield Road,
Chippengham.

15th September, 1960.

CONTRACTS

STAFFORDSHIRE COUNTY COUNCIL.

COUNTY ROADS AND BRIDGES COMMITTEE.

NEWCASTLE-MADELEY-WOORE ROAD, A.525.

FOOTPATH AND FOOTBRIDGE OVER RAILWAY AT MADELEY.

TENDERS are invited for CARRYING OUT the ABOVE WORK, comprising the Construction of Brick-faced Concrete Abutments and Retaining Walls, Taking Delivery, Assembly and Erection of an 80ft. span Tubular Steel Footbridge, together with the Provision of Fencing, and a Footpath on the Bridge Approaches.

Applications for tender documents should be made to the undersigned, and must be accompanied by a deposit of Five Pounds (£5), which will be returned on receipt of a bona-fide Tender or the return of the documents before the closing date.

Completed Tenders should be returned to the undersigned by not later than 10 a.m. on THURSDAY, 13th October, 1960.

T. H. EVANS.

Clerk of the County Council.

County Buildings,
Stafford.

SURREY COUNTY COUNCIL.

HIGHWAYS AND BRIDGES DEPARTMENT.

TENDERS are invited for the CONSTRUCTION in concrete of an EXTENSION to the ACCOMMODATION ROAD at KNOLLMEAD, SURBITON, length approx. 110 yd.

Particulars and Forms of Tender, returnable by 8th OCTOBER, obtainable from COUNTY ENGINEER, County Hall, Kingston-upon-Thames.

COUNTY BOROUGH OF WARRINGTON.

TO CIVIL ENGINEERING CONTRACTORS.

The HOUSING COMMITTEE of the COUNCIL of the County Borough of Warrington is prepared to receive TENDERS for the CONSTRUCTION OF ROADS AND SEWERS on the ORFORD NEIGHBOURHOOD UNIT, Sites Nos. 11A and 12, comprising approx. 1,200 lin. yd. of Pitched Carriageway and 1,700 lin. yd. of 6in., 9in. and 12in. dia. Sewers.

Drawings, Specifications, etc., may be seen, and Forms of Tender, Bills of Quantities and all further information obtained at the Office of the Borough Surveyor, Town Hall, on and after Friday, the 16th September, 1960, at which place Tenders must be delivered before 12 o'clock on WEDNESDAY, the 5th day of October, 1960.

A deposit of £2 2s., cheques to be made payable to the Borough Treasurer, will be required for the contract documents, and this will be refunded on receipt of a bona-fide Tender.

The lowest or any Tender not necessarily accepted.

J. Y. HUGHES.

M.I.C.E.

Borough Engineer and Surveyor.

Borough Engineer and Surveyor's Office.

14th September, 1960.

BOROUGH OF WARWICK.

PERCY ESTATE, PHASE IV.

LAYING OF WATER MAINS.

TENDERS are invited from experienced contractors for the LAYING OF approx. 1,100 lin. yd. of 4in. dia. ASBESTOS-CEMENT WATER MAIN on the ABOVE ESTATE.

Tender documents may be obtained from the Borough Engineer and Surveyor, 23 Jury Street, Warwick, on payment of £2 2s. deposit, returnable on receipt of a bona-fide Tender, not subsequently withdrawn.

Tenders must be returned, in the envelopes provided, not later than THURSDAY, 6th October, 1960, and the Council do not bind themselves to accept the lowest or any Tender received.

H. B. DOLPHIN.

M.C., T.D., M.A.(Oxon).

Town Clerk.

Pageant House,
Warwick.

CITY OF LIVERPOOL.

TENDERS invited for the SUPPLY AND ERECTION OF CONCRETE FENCING at the CORPORATION DEPOT, Queens Drive, Walton, Liverpool, 4.

Documents from City Engineer and Surveyor, Municipal Buildings, Liverpool, 2.

Tenders returnable by 14th OCTOBER, 1960.

(J.6392.) THOMAS ALKER.

Town Clerk.

URBAN DISTRICT OF BENFLEET.

AMENDED ADVERTISEMENT.

The Council will shortly be inviting TENDERS for the ERECTION OF 27 OLD PERSONS' BUNGALOWS and the CONSTRUCTION OF A NEW STREET at HADLEIGH, Essex.

Building contractors interested are asked to communicate with the Engineer and Surveyor at the address below not later than 28th SEPTEMBER.

D. GRIDDINGS.

Clerk of the Council.

Council Offices,
Thundersley,
Essex.

BIGGLESWADE WATER BOARD.

ADDITIONAL SUPPLIES.

CONTRACT NO. 4—MAIN TO CAMPTON AND MEPPERSHALL EXTENSION.

The Biggleswade Water Board invites TENDERS from public works contractors for the LAYING OF approx. 3½-mile of 8in. and 1½-mile of 6in. ASBESTOS-CEMENT MAINS and also an EXTENSION to the FILTER HOUSE at the existing Meppershall Water Works, 6in. Spun-iron Rising Mains from the Boreholes, and ancillary works.

Tender documents may be obtained at the Offices of the Engineers, MESSRS. BINNIE, DEACON AND GOURLEY, Artillery House, Artillery Row, Westminster, S.W.1, on payment of a cheque for £10 made payable to the Biggleswade Water Board, which amount will only be refunded on receipt of a bona-fide Tender.

Tenders, in plain sealed envelopes endorsed "Tender No. 4," must be delivered at my Office before Noon on MONDAY, 17th October, 1960.

The Board does not undertake to accept the lowest or any Tender, and will not defray any expenses in connection with tendering, but tenderers must make themselves fully acquainted with the site and conditions of work.

W. M. HYDE.

Clerk to the Biggleswade Water Board.

23 London Road,
Biggleswade,
Beds.

CONTRACTS

SURREY COUNTY COUNCIL.
HIGHWAYS AND BRIDGES DEPARTMENT.

TENDERS are invited for the IMPROVEMENT of the section of the LONDON-PORTSMOUTH TRUNK ROAD (A.3) between VINE HOUSE and SAVOY CINEMA, STREET COBHAM, a length of about 250 in. yd., comprising Excavation, Drainage, Lean-mix Concrete Foundation with Asphalt Surfacing. Particulars and Forms of Tender, returnable by MONDAY, 17th October, 1960, obtainable from COUNTY ENGINEER, County Hall, Kingston-upon-Thames.

METROPOLITAN BOROUGH OF
PADDINGTON.

ERECTION OF ONE BLOCK OF FLATS, COMPRISING A TOTAL OF 12 DWELLINGS, SITUATE AT THE JUNCTION OF DENHOLME AND MACROOM ROADS, PADDINGTON, W.9.

The COUNCIL invite applications (to be received by the undersigned not later than 14th October, 1960) from builders and contractors who wish to be considered for inclusion in the list of those invited to submit a TENDER for these works.

The Contract embraces the ERECTION and COMPLETION OF ONE 3-STORY BLOCK OF 12 FLATS, Constructed with Cross-walls of Brick Load-bearing Construction, Concrete Fire-resisting Floors, Slated Pitched Roof, External Transformer Chamber, Pram Sheds, Paths, Drains, and External Services and site works.

The Council require to be satisfied that contractors wishing to tender have had previous experience of works of this nature. Applicants are required to submit particulars of such works, and of the local authorities and/or Architects under whose supervision they have carried them out, with details of the nature and scope of the contract in each case, and the date when it was completed.

It is anticipated that the Bills of Quantities will be available for issue to the selected tenderers during November, 1960, and the Tenders will be receivable during DECEMBER, 1960.

The contractors who are selected to tender for the works will be required to submit £2 2s. as a deposit, on receipt of which the Bills of Quantities will be supplied. This deposit will be refunded on receipt of a bona-fide Tender.

The Council do not bind themselves to accept the lowest or any Tender.

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington Green, W.2.
22nd September, 1960.

BOROUGH OF HEMEL HEMPSTEAD.

CENTRAL NURSERY.

TENDERS are invited for the FOLLOWING at the Council's CENTRAL NURSERY SITE, TWO WATERS ROAD—

- (1) Main Contract, comprising Glasshouse Foundation Work, Erection of Boiler House and Chimney, Fuel Storage and Electrical Work.
- (2) Glasshouses, comprising the Provision and Erection of Two 100ft. x 30ft. Glasshouses on prepared foundations.
- (3) Heating Installation, comprising Hot Water Heating Apparatus alternatively by oil or solid fuel firing.

Contractors wishing to tender for all or any of the above may obtain Specifications, Bills of Quantities and Drawing from A. H. TURNER, A.M.I.C.E., Borough Engineer, High Street, Hemel Hempstead, Herts., at whose Office the General Conditions of Contract may be inspected during normal office hours.

Tenders, in plain sealed envelopes, bearing no indication of the sender, and appropriately endorsed "Central Nursery—Main Contract," "Central Nursery—Glasshouses," or "Central Nursery—Heating Installation," are to be delivered to me not later than 12 Noon on WEDNESDAY the 8th November, 1960. The Corporation do not bind themselves to accept the lowest or any Tender.

C. W. G. T. KIRK,
Town Clerk.

Town Hall,
Hemel Hempstead, Herts.
14th September, 1960.

SADDLEWORTH URBAN DISTRICT
COUNCIL.

PRIVATE STREET WORKS ACT, 1892.

WHARMTON RISE, GRASSCROFT.

FIXED-PRICE TENDERS are invited for MAKING-UP OF THE ABOVE STREET, involving the following approx. quantities: 1,400 sq. yd. of Tarmacadam Carriageway, 350 in. yd. of Concrete Kerbing, 1,000 sq. yd. of Tarmacadam Footways, Surface Water Drainage, and other incidental works.

Form of Tender, Specification and Bills of Quantities may be obtained from the Engineer and Surveyor, Council Offices, Uppermill, near Oldham, and Drawings and General Conditions of Contract inspected at the same Office. Applications must be accompanied by a deposit of Two Guineas, which will be refunded on receipt of a bona-fide Tender, not subsequently withdrawn, and on the return of all documents issued.

Tenders, on the prescribed forms, enclosed in plain sealed envelopes, endorsed "Tender for Private Street Works," and bearing no indication of the sender, are to be delivered to the undersigned not later than 12 Noon on MONDAY, the 17th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

T. NUTTALL,
Clerk of the Council.

Council Offices,
St. Chad's,
Uppermill,
Near Oldham.

URBAN DISTRICT OF MERTON AND
MORDEN.

INSTALLATION OF CLASS "A" STREET LIGHTING.

TENDERS are invited for the SUPPLY and ERECTION OF 80 MERCURY VAPOUR and SODIUM LANTERNS, complete with Control Gear and Wiring, on 25ft. Concrete Columns, in WANDLE ROAD, GREEN LANE and MIDDLETON ROAD.

Form of Tender, Specification and Bill of Quantities may be obtained from the Engineer and Surveyor, Morden Hall, S.W.19, at whose Office the General Conditions of Contract may be seen during normal office hours.

Sealed Tenders, in the envelope provided, bearing no name or mark indicating the sender, must be delivered to me not later than 10 a.m. on MONDAY, the 10th October.

SYDNEY ASTIN,
Clerk of the Council.

Morden Hall,
S.W.19.
September, 1960.

CONTRACTS

ROYAL BOROUGH OF KINGSTON-
UPON-THAMES.

CONSTRUCTION OF NEW PARKING AREA—
LONDON ROAD, KINGSTON-UPON-THAMES.

TENDERS are invited for the ABOVE WORKS, which consist of EARTHMOVING, GRADING and FORMING ASH SURFACE on the PARKING AREA. Full details from Borough Surveyor, Guildhall, Kingston-upon-Thames, on deposit of Two Guineas, returnable on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders to be submitted by First Post on MONDAY, 17th October, 1960.

The Corporation do not bind themselves to accept the lowest or any Tender.

L. V. POWELL,
Town Clerk.

Guildhall,
Kingston-upon-Thames,
15th September, 1960.

METROPOLITAN BOROUGH OF
STEPNEY.

SPITAL STREET HOUSING SCHEME.

TENDERS are invited for the ERECTION of a BLOCK of 28 FLATS seven storeys high. Forms of Tender, with Conditions, etc., obtainable from the Borough Engineer and Surveyor, Municipal Offices, 227/233 Commercial Road, E.1, upon payment of a deposit of 10 Guineas.

Closing date for Tenders, 24th OCTOBER, 1960.

WILFRED REEVE,
Town Clerk.

BOROUGH OF CROSBY.

SEA OUTFALL—MARINERS ROAD,
BLUNDELSANDS.

TENDERS are invited for the REPAIR of a 54in. dia. SEA OUTFALL PIPE, involving Excavation, Piling, Realignment and Supporting Pipe on Cradles over a length of approx. 120yd.

Copies of Specification, Bill of Quantities and Form of Tender may be obtained on application to the Borough Engineer and Surveyor at the address below, on payment of a deposit of £2, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn. Drawings of the work may be inspected at the Borough Engineer's Office.

Sealed Tenders, marked "Repairs to Storm Water Outfall Pipe—Mariners Road, Blundellsands," to be delivered to the undersigned not later than Noon on 12th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

HAROLD O. ROBERTS,
Town Clerk.

Town Hall,
Waterloo,
Liverpool, 22.

URBAN DISTRICT COUNCIL OF
GAINSBOROUGH.CONSTRUCTION OF THREE SEWERAGE
SCHEMES.

TENDERS are invited for the CONSTRUCTION of THREE SEWERAGE SCHEMES in and near BRIDGE STREET, TRINITY STREET and MAYFLOWER CLOSE.

The work includes Construction of 270yd. of 6in. dia. Concrete Tube Sewer; 253yd. of 9in. dia. Concrete Tube Sewer; 625yd. of 12in. dia. Concrete Tube Sewer; 71yd. 15in. dia. Concrete Tube Sewer; 53yd. of 18in. dia. Concrete Tube Sewer; and the Construction or Alteration of 21 Manholes.

Form of Tender, Specification, Bills of Quantities and Plans may be obtained from, and the General Conditions of Contract may be examined at, the Office of the Engineer and Surveyor, on a deposit of a sum of Two Pounds (by crossed cheque made payable to the Urban District Council of Gainsborough), which will be returned on receipt of a bona-fide Tender not subsequently withdrawn, and the return of all documents.

Tenders, enclosed in plain envelopes and bearing no mark or identification of the sender, and endorsed "Tender—Sewerage Schemes," should be delivered to the undersigned not later than Noon on MONDAY, 17th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

J. E. BARRIE,
Clerk of the Council.

Council Offices,
6 Lord Street,
Gainsborough,
September, 1960.

HATFIELD RURAL DISTRICT COUNCIL.

DIXONS HILL ROAD SEWERAGE.

FIXED-PRICE TENDERS are invited for the CONSTRUCTION of approx. 250 in. yd. 9in. and 54 in. yd. 6 in. dia. GLAZED STONEWARE FLEXIBLE JOINTED SEWERS, together with 12 Concrete Manholes and 450 in. yd. of 4in. dia. Drain Connections to Residential Properties.

The Specification, Bill of Quantities and Form of Tender may be obtained on payment of £2 2s. deposit, which will be refunded after receipt of a bona-fide Tender, from the Engineer and Surveyor, North Place, 92 Great North Road, Hatfield, where also the Drawings and General Conditions of Contract may be inspected during normal working hours.

Tenders are to be submitted, in the envelope provided, to the undersigned, not later than 12 Noon on MONDAY, 3rd October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

S. F. JAGO,
Clerk of the Council.

Council Offices,
16 St. Albans Road,
Hatfield, Herts.

SUFFOLK AND IPSWICH FIRE
AUTHORITY.PROPOSED FIRE STATION—COLCHESTER ROAD,
IPSWICH.

TENDERS are invited for the ERECTION of a NEW FIRE STATION at Colchester Road, Ipswich. Applications for Bills of Quantities and Tender Forms are to be made to the Offices of the Architects, MESSRS. JOHNS, SLATER AND HAWARD, F.A.R.I.B.A., of 32 Foundation Street, Ipswich, not later than 17th October, 1960, and should be accompanied by a £2 2s. deposit, returnable upon receipt of a bona-fide Tender. Plans can be inspected at the Offices of the Architects during the tendering period.

Tenders, in plain sealed envelopes bearing the words "Tender for Colchester Road Fire Station, Ipswich," but with no name or mark to indicate the sender, must be sent to G. C. LIGHTFOOT, Clerk of the Authority, County Hall, High Street, Ipswich, not later than the 12th DECEMBER, 1960.

CONTRACTS

CITY OF MANCHESTER.

TENDERS invited for EXTENSIONS to UNDERGROUND CONVENIENCES, PICCADILLY. Bill of Quantities from CITY ARCHITECT, P.O. Box 488, Town Hall.

Tenders returnable by 12th OCTOBER.

CITY AND COUNTY OF BRISTOL.

BRISLINGTON TRADING ESTATE—FOURTH
EXTENSION.

CONSTRUCTION OF ROADS AND SEWERS.

TENDERS invited for CONSTRUCTION OF ROADS and SEWERS on THIS SITE.

Work includes approx. 6,000 sq. yd. Bitumen Macadam Roads, including Kerbing and Channelling, and 1,100 in. yd. of Sewers varying from 6in. to 18in. in dia.

Plans seen, and copies of Conditions of Contract, Specification and Bill of Quantities obtainable on application to City Engineer and Planning Officer, Cabot House, Deane Road, Bristol, 1.

Tenders enclosed in envelope provided, endorsed "Brislington Trading Estate," but bearing no mark to indicate sender, to CITY ENGINEER AND PLANNING OFFICER by 10 a.m., 12th OCTOBER.

BOROUGH OF EPSOM AND EWELL.

PRIVATE STREET WORKS.

The CORPORATION invite TENDERS from public works contractors for the EXECUTION OF PRIVATE STREET WORKS at the FOLLOWING STREET, comprising Tarmacadam Footways, Kerbing, Footway Crossings and Verges, etc.:

Westcott Way (Part of), Cheam—from a line between the north-east boundary of Oakleigh No. 1 and the north-east boundary of Gorton House School No. 2 Westcott Way to Albury Avenue.

Conditions of Contract can be inspected at, and copies of the Plans, Specification, Bill of Quantities and Form of Tender obtained from, the Office of MR. COLIN COBBETT, A.M.I.C.E., M.I.Mun.E., Borough Engineer and Surveyor, Town Hall, Epsom, during working hours, upon payment of a deposit of £2 2s. Deposits will be returned to contractors submitting a bona-fide Tender not subsequently withdrawn.

Tenders must be delivered to me at the address mentioned below not later than 12 Noon on MONDAY, the 10th October, 1960, and no Tender will be received and considered unless it is enclosed in a plain sealed envelope endorsed "Tender for Private Street Works—Westcott Way (Part of), Cheam."

This envelope must not bear any mark or name indicating the sender.

The Corporation do not bind themselves to accept the lowest or any Tender.

EDWARD MOORE,
Town Clerk.

Town Hall,
The Parade,
Epsom,
September, 1960.

CITY OF SHEFFIELD.

TENDERS are invited for the UNDERMENTIONED SUPPLIES and SERVICES to all Departments of the Sheffield Corporation from 1st November, 1960, viz.: Crockery; Cutlery; Clock-winding; Funerals, and Laundry Work.

The necessary Forms of Tender may be obtained on application to the Town Clerk, Town Hall, Sheffield, to whom completed Forms of Tender must be delivered not later than 10 a.m. on FRIDAY, 7th October, 1960.

JOHN HEYS,
Town Clerk.

Town Hall,
Sheffield,
22nd September, 1960.

BEVERLEY RURAL DISTRICT COUNCIL.

LEVEN AND TICKTON SEWERAGE SCHEMES.

TENDERS are invited for the SUPPLY and ERECTION OF PUMPING and ELECTOR PLANT, complete with Electric Motors, Starters and Accessories, as follows:—

- CONTRACT No. 2:
Two 180 gallons per minute Sewage Pumps in Pumping Station at Leven.
One 100 gallons per minute Sludge Pump in Sludge Pumping Station at Leven.
One 100 gallons per minute Sludge Pump in Sludge Pumping Station at Tickton.

- CONTRACT No. 3:
Two 40 gallons per minute Sewage Electors in Ejector Station No. 1 at Leven.
Two 30 gallons per minute Sewage Electors in Ejector Station No. 2 at Leven.
Two 40 gallons per minute Sewage Electors in Ejector Station at Tickton.

Manufacturers wishing to tender should apply for the documents and Drawings to the Council's Consulting Engineers, JOHN H. HAISTE AND PARTNERS, Belmont House, 20 Wood Lane, Headingley, Leeds, 6, enclosing a deposit cheque value Three Guineas in respect of each contract, made payable to the Beverley R.D.C., such deposit to be refunded upon receipt of a bona-fide Tender and the return of all the documents and Drawings.

Tenders are to be submitted to the undersigned not later than 12 Noon on the 24th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender they may receive.

G. TOWIS,
Clerk of the Council.

The Gables,
65 Silgate,
Beverley.

For Contracts received too late for
classification see page 1429

APPOINTMENTS VACANT

METROPOLITAN BOROUGH OF
SHOREDITCH.

APPLICATIONS are invited for the APPOINTMENT OF DEPUTY HIGHWAYS AND SEWERS SUPERINTENDENT. Salary A.P.T. III (£925-£1,100). Permanent appointment. Subject to medical examination. Council's Superannuation Scheme and N.J.C. Conditions.

Applicants should have extensive experience in the construction and maintenance of roads and sewers. Applications, stating age, training and experience, and giving the names of two referees, to reach BOROUGH ENGINEER, Town Hall, Old Street, E.C.1, by 6th OCTOBER, 1960.

APPOINTMENTS VACANT

MERIONETH COUNTY COUNCIL.

HIGHWAYS AND BRIDGES DEPARTMENT.

APPLICATIONS are invited for the FOLLOWING PERMANENT APPOINTMENTS in the County Surveyor's Department:

- (a) Two Assistant Engineers—Salary Grade A.P.T. IV of the National Joint Council Scales; and
(b) Assistant Engineer—Salary Grade A.P.T. II of the National Joint Council Scales.
- Applicants for appointments (a) should have had good experience in the design and preparation of road and bridge schemes, and be capable of supervising the actual works whether executed by contract or direct labour.

Preference will be given to candidates who are Associate Members of the Institution of Civil Engineers and/or of the Institution of Municipal Engineers.

Applicants for appointment (b) should have had experience in the design and preparation of road and bridge schemes.

Preference will be given to candidates who are suitably qualified and have had previous experience under a County Authority.

Applications, on the Council's application forms, must be received by the COUNTY CLERK, County Offices, Peniarth, Dolgellau, by not later than MONDAY, 3rd October, 1960.

LINDSEY COUNTY COUNCIL.

HIGHWAYS DEPARTMENT.

(1) SENIOR ENGINEERING ASSISTANT REQUIRED primarily for the preparation and execution of extensive trunk road schemes now imminent. Salary within A.P.T. V (£1,220-£1,375).

(2) ENGINEERING ASSISTANT, with practical experience of highway design and construction. Salary within Special Grade (£785-£1,070).

Applicants for either post must have final professional qualifications. 5-day week. Travelling allowance. N.J.C. Conditions.

Applications, on forms obtainable from the COUNTY SURVEYOR, County Offices, Lincoln, must be received by the 10th OCTOBER, 1960.

12th September, 1960.

COUNTY BOROUGH OF BLACKPOOL.

TEMPORARY CLERK OF WORKS (ENGINEERING).

APPLICATIONS (by 30th SEPTEMBER) for the ABOVE APPOINTMENT, for supervision of large main drainage works.

Salary: Misc. V (£650-£715).
Particulars and Application Form obtainable from BOROUGH SURVEYOR (ARTHUR HAMILTON, B.Sc.), P.O. Box 17, Municipal Buildings, Blackpool.

NEWTON ABBOT URBAN DISTRICT COUNCIL.

APPOINTMENT OF WORKS SUPERINTENDENT.

APPLICATIONS are invited for the ABOVE APPOINTMENT in the Engineer and Surveyor's Department at a salary in the A.P.T. Grade I (£610-£765 p.a.), but commencing salary will be commensurate with experience.

Candidates must have had experience with a Local Authority, including the following: Street cleaning, sewerage and sewage disposal works, highway maintenance and construction, housing repairs, street lighting, etc.

Housing accommodation will be available if necessary.

Candidates will be required to drive a van which is provided to help carry out their duties.

The appointment will be subject to the provision of the Local Government Superannuation Act, and the successful candidate will be required to pass a medical examination.

Applications, stating age and other particulars, qualifications (if any), experience and previous appointments, should be forwarded to the Engineer and Surveyor, 18 Devon Square, Newton Abbot, accompanied by not more than three recent testimonials, not later than 30th SEPTEMBER, 1960.

H. EVANS, Clerk of the Council.

Town Hall, Courtenay Street, Newton Abbot, September, 1960.

SOWERBY BRIDGE URBAN DISTRICT COUNCIL.

DEPUTY ENGINEER AND SURVEYOR.

APPLICATIONS are invited for the APPOINTMENT OF DEPUTY ENGINEER AND SURVEYOR at a salary in accordance with A.P.T. Grade IV (£1,065-£1,220). An Essential Users Car Allowance will be paid.

Candidates must be Chartered Civil or Municipal Engineers and must have had good experience of general municipal engineering.

The appointment will be subject to the Local Government Superannuation Acts, and the successful applicant will be required to pass a medical examination.

Housing accommodation will be available if required.

Applications, endorsed "Deputy Engineer and Surveyor," stating age, qualifications and experience, and giving the names and addresses of two persons to whom reference may be made, must reach the undersigned not later than MONDAY, 3rd October, 1960.

ALFRED WOMERSLEY, Clerk of the Council.

Allan House, Sowerby Bridge.

URBAN DISTRICT COUNCIL OF FRINTON AND WALTON.

APPLICATIONS are invited for the APPOINTMENT OF DEPUTY ENGINEER AND SURVEYOR at a salary in accordance with A.P.T. Grade III (£880-£1,065 per annum).

Preference will be given to suitably qualified applicants.

The appointment will be subject to the Local Government Superannuation Acts, if required, will be made available.

Forms of application and further details may be obtained on application to the Engineer and Surveyor at The Council House, Frinton-on-Sea.

Applications must be received by not later than WEDNESDAY, 12th October, 1960.

Canvassing, directly or indirectly, will disqualify.

J. P. MCARNEY, Clerk of the Council.

The Council House, Frinton-on-Sea, Essex, 16th September, 1960.

APPOINTMENTS VACANT

ADEN GOVERNMENT.

PUBLIC WORKS DEPARTMENT.

INSPECTOR OF WORKS (ROADS) REQUIRED. On contract for tour of 18-24 months in first instance. Salary, according to experience, in Scale (including Pay Differential), £1,040, rising to £1,579 a year. Supplementary Pay Differential £120 to £144 a year payable to officer with dependent children. Gratuity at rate of 12½ per cent. of total salary drawn. Outfit allowance £60. Free passages for officer and wife. Free passages for up to four children and allowance of up to £288 annually for cost of education in U.K. Liberal leave on full salary between tours, or terminal payment in lieu if contract not renewed. Quarters available at moderate rental.

Candidates over 28, must have served apprenticeship in building trade and have had at least five years in supervisory capacity. Knowledge of bitumen mixing and laying plant, surface dressing and road formation construction also desirable.

Write to the CROWN AGENTS, 4 Millbank, London, S.W.1. State age, name (in block letters), qualifications and experience, and quote M28/51037/CA.

COUNTY OF CORNWALL.

HIGHWAYS DEPARTMENT.

APPLICATIONS are invited from qualified Engineers for the APPOINTMENT of ENGINEERING ASSISTANT within the Special Grade (£785-£1,070). A car allowance will be paid.

Applicants must have had experience in design and preparation of road schemes and execution of works.

Applications, together with names of two persons to whom reference may be made, should be sent to the County Surveyor, County Hall, Truro, by 5th OCTOBER, 1960.

E. T. VERGER, Clerk of the County Council.

County Hall, Truro, 8th September, 1960.

HAMPSHIRE COUNTY COUNCIL.

ASSISTANT DIVISIONAL SURVEYOR, A.P.T. II (£785-£880). REQUIRED for PENSIONABLE POST in County Surveyor's Department in Hartley Wintney Division. Commencing salary according to qualifications and experience. Candidates must have had experience in the construction and maintenance of highways, be good levellers and surveyors, and be capable of setting-out and supervising roadworks.

A flat is available at Hartley Wintney, and in approved cases the Council assists with removal and separation allowances.

Application Forms (send S.A.E.), returnable by 30th SEPTEMBER, from the CLERK OF THE COUNTY COUNCIL, The Castle, Winchester.

LONDON COUNTY COUNCIL.

HOUSING MANAGEMENT DEPARTMENT.

CLERK OF WORKS REQUIRED (salary range 228 to 303s. 6d.), with sound experience in building construction, particularly concerning dangerous structures and party walls in houses. Experience must include direction of contractors and demolitions, shoring and consequential making-good and repair work.

Temporary, but possibility of permanency. Superannuable.

Write not later than 2nd OCTOBER, stating age, qualifications and experience, to DIRECTOR OF HOUSING (G/C/2366/9), County Hall, S.E.1.

CITY OF NEW SARUM.

APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited for the APPOINTMENT OF RESIDENT ENGINEER to supervise the construction of a new sewage treatment plant at Peter's Fingery, Salisbury, and associated sewage works. Work will start during September, 1960, and will last for about 2½ years. A Resident Engineer's Clerk will be appointed.

The appointment will be superannuable and will be terminable by one month's notice on either side. A car allowance will be payable, but applicants should state the salary they require.

Applicants should have had wide experience on similar works, and preference will be given to holders of a recognised civil engineering qualification.

Applications, endorsed Resident Engineer, and stating age, qualifications and experience, together with the names of two persons to whom reference can be made, must be delivered to the City Engineer. The Council House, Salisbury, not later than Noon on MONDAY, 3rd October, 1960.

GEO. RICHARDSON, Town Clerk.

CITY OF PLYMOUTH.

APPLICATIONS are invited for the APPOINTMENT OF JUNIOR ASSISTANT ENGINEER, Grade A.P.T. II Special.

Applicants should have completed approved training. The starting salary will be in Grade A.P.T. II or Special, according to qualifications and experience, but in any event a man becoming fully qualified in A.P.T. II will be promoted to Special Grade.

It is the practice of the Council to pay half the cost of household removal expenses up to a maximum contribution of £25.

Housing accommodation may be available in certain circumstances.

Appointments are superannuable, subject to medical examination, and the age limit is 40 years, or 45 years if serving with another local authority.

Application, on form available from the undersigned, must be returned by 8th OCTOBER, 1960.

J. ACKROYD, City Engineer and Surveyor.

The Guildhall, Plymouth, 16th September, 1960.

WEST SUSSEX RIVER BOARD.

ENGINEERING ASSISTANT, GRADE A.P.T. I (£610-£765).

APPLICATIONS are invited for the ABOVE SUPERANNUABLE POST from candidates who are capable of preparing surveys and small schemes of improvement for land drainage and sea defence works.

Previous experience with a land drainage authority will be an advantage, but is not essential.

Applications, stating age, education, experience, qualifications (if any), and giving the names of two referees, to be sent to the Chief Engineer, West Sussex River Board, County Hall, Chichester, Sussex, by 15th OCTOBER, 1960.

T. C. HAYWARD, Clerk of the Board.

15th September, 1960.

APPOINTMENTS VACANT

GOVERNMENT OF SIERRA LEONE.

EXECUTIVE ENGINEERS.

Qualifications: Candidates, preferably under 35 years of age, should have either a University degree, or equivalent, recognised by the Institution of Civil Engineers, and two years' practical experience; or have passed, or be otherwise exempt from, Parts I and II of the Final Examinations of the Institution of Civil Engineers, with at least five years' practical experience.

Duties: General construction and maintenance on roads, bridges, waterworks and buildings. Must be prepared to live up-country and travel extensively.

Emoluments in Scale £1,470 to £2,145 p.a.

Terms: Contract/gratuity for one tour of 18-24 months with gratuity of 15 per cent.

Free passages. Generous home leave.

Apply DIRECTOR OF RECRUITMENT, Colonial Office, London, S.W.1. Give full name and age, and brief details of qualifications and experience, quoting BCD.112/15/02/D14.

SURREY COUNTY COUNCIL.

HIGHWAYS AND BRIDGES DEPARTMENT.

APPLICATIONS are invited for a HIGHWAYS SUPERINTENDENT on salary scale A.P.T. III (£880-£1,065) plus London Allowance.

Person appointed will be based on the Council's Highways Department, and be responsible for supervising the maintenance of certain trunk and county roads; carrying out small improvement schemes by contract and direct labour; the production of coated stone; vehicle and plant maintenance; control of transport, stocks and stores.

Forms of Application, returnable by 10th OCTOBER, 1960, obtainable from COUNTY ENGINEER, County Hall, Kingston-upon-Thames.

FLINTSHIRE COUNTY COUNCIL.

HIGHWAYS DEPARTMENT.

APPOINTMENT OF INSPECTOR—QUEENSFERRY BY-PASS SCHEME.

APPLICATIONS are invited for the APPOINTMENT OF INSPECTOR, salary £900-£1,000, according to qualifications and experience, to supervise the construction by contract of the road works, part of the above scheme, which includes 1.7 miles of dual carriageway.

This appointment is to the Council's temporary staff for the duration of the work, which is expected to take 12 months, with a possibility of extension on other works. It is subject to one month's notice.

Separation or subsistence allowance will be paid in approved cases.

Applicants should have a sound knowledge of work in all aspects of supervision and measuring up of large contract, heavy earthworks, drainage and road construction works of all types.

Further particulars of conditions of service and application form obtainable from the CLERK OF THE COUNTY COUNCIL, County Buildings, P.O. Box No. 1, Mold.

SOUTH WESTMORLAND RURAL DISTRICT COUNCIL.

APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited for the POST OF RESIDENT ENGINEER to supervise, on the Council's behalf, under the direction of their Consulting Engineers, MESSRS. WARD, ASHCROFT AND PARKMAN, the construction of 6in. dia. concrete sewers, house connections, pumping stations, and a small sewage disposal works at Levens, near Kendal.

The salary will be at the rate of £1,000 per annum plus allowance at the rate of £250 per annum for travelling and subsistence. The duration of the appointment is expected to be 18 to 21 months.

Applications, stating age, giving full particulars of qualifications and previous appointments, and naming three persons to whom reference may be made, should be delivered to the undersigned (in envelopes endorsed "Resident Engineer") not later than MONDAY, 3rd October, 1960.

H. SAUL, Clerk of the Council.

P.O. Box No. 18, Stricklandgate House, Kendal, Westmorland.

MANCHESTER CORPORATION.

RESIDENT ENGINEER (Special Scale £785/£1,070) on the permanent staff, to supervise the construction of roads and sewers on housing sites.

Housing accommodation and removal expenses.

APPLICATIONS, stating age, education, qualifications and experience, with the names of three referees, to CITY SURVEYOR, Town Hall, Manchester, 2, by 10th OCTOBER, 1960.

SENIOR DESIGN ENGINEER REQUIRED on industrial construction contracts in South Wales area.

Applicants should have experience in reinforced concrete, steelwork and building design as applied to industrial construction work. Good prospects and permanent position with superannuation and bonus schemes in operation.—Apply to Personnel Officer, TARMAC CIVIL ENGINEERING, LTD., Ebbw Vale, Glamorgan.

Wolverhampton.

QUANTITY SURVEYORS REQUIRED on industrial construction contracts in North-East England.

Applicants should have extensive experience of civil engineering and building construction work, with particular reference to industrial work. Good prospects and permanent position, with superannuation and bonus schemes in operation.—Apply to Personnel Officer, TARMAC CIVIL ENGINEERING, LTD., Ebbw Vale, Glamorgan.

Wolverhampton.

SMALL, progressive and rapidly growing company in the builders' merchants' line REQUIRES a First-class SALESMAN/MANAGER with drive and initiative, able to negotiate at any level, having considerable knowledge and experience of the trade.

Applicant will be expected to take over buying department, arrange agencies and act as Assistant to the Managing Director. Exceptional opportunity for the right man.—Apply to the Managing Director, BRAUNTON GENERAL TRADING CO., LTD., Heanton Street, Braintree, North Devon.

SENIOR ESTIMATOR for building and civil engineering. Applicants must have had wide background as an Estimator. Exceptional opportunity for suitable applicant.—Apply, stating full details, to MARTIN COWLEY, LTD., 112 Jermyn Street, London, S.W.1.

SENIOR ENGINEER/SUB-AGENT REQUIRED for power station contract by major firm of civil engineering and building contractors. This is a permanent appointment, with prospects of rapid promotion to Agent, and has ample scope for further advancement thereafter for the right applicant.

Write Box V.2671, "The Contract Journal."

APPOINTMENTS VACANT

CONTRACTORS' AGENTS REQUIRED to supervise mobile labour gangs on long-term contracts in the London area. Applicants must be familiar with the W.R.A. and experienced in handling and organising labour.—Write, giving details of age, experience, etc., which will be treated in the strictest confidence, to **THE EAGRE CONSTRUCTION CO., LTD.**, East Common Lane, Scunthorpe, Lincs.

TIMEKEEPER/WAGES CLERK REQUIRED for long-term contract in the London area. Applicants must be well versed in W.R.A. and P.A.Y.E. procedure.—Write, giving details of age, experience, etc., which will be treated in the strictest confidence, to **THE EAGRE CONSTRUCTION CO., LTD.**, East Common Lane, Scunthorpe, Lincs.

EXPERIENCED ESTIMATOR, preferably with site experience, REQUIRED by civil engineering and building contractors. Permanent, progressive position; pensionable after probationary period.—**THOMAS VALE AND SONS, LTD.**, Stourport-on-Severn, Tel.: Stourport 2462.

ESTIMATOR REQUIRED for civil engineering contractors' London office. Applicants should have been previously engaged in the preparation of tenders for earthworks, foundations, roads, drainage, construction, and sound site experience of such works would be to advantage. The position is progressive and covered by a superannuation scheme. Applications invited in confidence (existing staff advised of vacancy).—Write Box V.2608, "The Contract Journal."

GANGERS WANTED for contracts in South Lancashire/Cheshire. Own following preferred. Top rates and permanency offered to first-class men; others need apply.—**JAMES BENNETT (CONTRACTORS), LTD.**, Helsby Street, Warrington, Tel. 35451.

CIVIL ENGINEERS

REQUIRED for technical sales, planning and supervision. Applicants, preferably aged 25 to 35, must be of good address, well-educated and have had site and drawing office experience. Positions call for a sound civil engineering background rather than highest technical qualifications. A working knowledge of soil mechanics would be advantageous. Positions are progressive, permanent and pensionable. Successful applicants may be based in Derby or London.—Reply, with full particulars, to

F.C. CONSTRUCTION CO., LTD.,
City Road, Derby.

CIVIL ENGINEERS REQUIRED for steelwork construction contracts in the North-East. Fully experienced and accurate in setting-out, able to work on own initiative and measure-up as work proceeds. Good prospects, with salary according to ability.—Write Box V.2656, "The Contract Journal."

JUNIOR CIVIL ENGINEERS REQUIRED for bridge construction and dual carriageway project in the Bristol area. Efficient knowledge with survey instruments necessary.—Apply, stating age, experience, qualifications, etc., to: **SYDNEY GREEN AND SONS (CONTRACTORS), LTD.**, Highwood Lane, Cribbs Causeway, Bristol. This project will provide excellent opportunities in modern motorway construction for the young engineer.

SITE ENGINEERS.—If you are ambitious and anxious for rapid promotion in position with responsibility and salary, and are young with a few years' setting-out experience on contracts, we have several positions open and invite you to get in touch with us to discuss details, terms and conditions. **WILSON LOVATT AND SONS, LTD.**, Clarence Street, Wolverhampton.

CUBITTS—SENIOR ESTIMATOR REQUIRED, with experience of good-class competitive building work in the London area. Permanent head office appointment, with contributory pension scheme. Applications should give brief but full information in confidence to Personnel Manager (CJ3484), **HOLLAND & HANNEN AND CUBITTS (GREAT BRITAIN), LTD.**, 1 Queen Anne's Gate, London, S.W.1.

J. I. CASE COMPANY, LTD.

REQUIRE for their Leeds depot a **SERVICE MANAGER**. He will be responsible to the Service Manager in London for servicing, repairs and parts in Northern England, and will recruit his own staff. It is proposed to delegate maximum responsibility and a first-class organiser is therefore sought, fully experienced for this work.—Reply to:

Home Sales Director,
J. I. CASE COMPANY, LTD.,
Elruge, Mill Road, West Drayton, Middlesex.

FRED MYERS, LTD., invite applications in confidence for two first-class positions: (a) **EARTH-MOVING EQUIPMENT SALES REPRESENTATIVE**.—Applicants for this important position should have sound experience of earthmoving equipment. Preference will be given to men with knowledge of Caterpillar products. Payment will be by salary and quarterly bonus. A motor car will be provided and expenses paid; (b) **USED EQUIPMENT SALESMAN**.—We require the services of a first-class Used Equipment Salesman, prepared to develop this most important side of the company's activities. The successful candidate will be expected to expand the organisation and ultimately assume a managerial position in charge of the used equipment department. Salary and quarterly bonus. Car provided and expenses paid. First-class opportunities for active and experienced men.—Please send full details to Sales Manager, **FRED MYERS, LTD.**, 24 Bruton Street, London, W.1.

CUBITTS—HOLLAND & HANNEN AND CUBITTS (GREAT BRITAIN), LTD., invite applications from **COST AND BONUS SURVEYORS** experienced in measuring complete siteworks, and assessment of targets. Permanent and pensionable positions, with good prospects.—Apply in confidence, stating age, experience in detail, and salary required, to Personnel Manager (CJ3483), 1 Queen Anne's Gate, London, S.W.1.

FIRM of national building contractors REQUIRE **FIRST-CLASS REINFORCED CONCRETE GENERAL FOREMEN** for work in Northern area. Permanent and pensionable positions for right applicants.—Write to Box L.L.398, "The Contract Journal."

BUILDING ESTIMATOR.—If you are young and have H.N.C. or I.O.B. in building and some experience in building-up prices for estimating, we have a progressive vacancy offering good salary to a suitable applicant.—Please get in touch with **WILSON LOVATT AND SONS, LTD.**, Clarence Street, Wolverhampton.

APPOINTMENTS VACANT

CIVIL ENGINEERING contractors expanding their organisation wish to appoint a **SENIOR SITE ENGINEER** for roadworks and main drainage contracts in the Oxfordshire area. Salary range of £1,000/£1,250 p.a. Permanent and progressive post, with superannuation scheme.—Write in confidence, stating age, full details of experience, and past employers, etc., to Box V.2652, "The Contract Journal."

ASSISTANT ENGINEER REQUIRED by major civil engineering and building contractors operating on a national scale on nuclear, steam and hydro-electric projects. This permanent appointment is initially for a major civil engineering contract, with excellent opportunities for advancement. Good salary and conditions, and entry into superannuation scheme after 12 months' service.—Apply to **THE MITCHELL CONSTRUCTION CO., LTD.**, Wharf Works, Peterborough.

AGENT, large housing estate in Hampshire, including roads and sewers. Approx. duration of contract—December, 1961.—Write, stating experience, and salary required, to Box V.2715, "The Contract Journal."

CONTRACTS MANAGER

REQUIRED by leading specialist reinforced concrete and steel contractors. Responsible men with preferably five years' similar experience. All-round knowledge of modern means and methods. Salary to commence £1,500 per annum, rising in five years to £2,000 per annum.

WRITE BOX V.2702, "THE CONTRACT JOURNAL."

CUBITTS—Vacancies exist in the building department for **CONTRACT SUPERVISORS, FORMWORK DESIGN ENGINEER, PLANNING ENGINEER, GENERAL FOREMEN**. The positions offer outstanding opportunities to men seeking interesting employment, excellent prospects and worthwhile achievement, with a progressive organisation, on a wide variety of projects. To ensure the best approach to the many problems confronted, there is a positive staff training policy enabling staff to keep abreast of new developments and construction techniques, thus providing a basis for advancement to a more senior position. Those applying should have the aptitude and interest to suit this type of organisation, and appreciate the value of detailed planning, cost control procedure and work study. Superannuation, bonus and other staff benefit schemes are in operation. Each suitable applicant will be invited to attend an interview and will be given the opportunity to discuss the positions available, but in the first instance brief personal details of experience should be sent to Mr. E. E. Batty, Personnel Manager (CJ3485), **HOLLAND & HANNEN AND CUBITTS (GREAT BRITAIN), LTD.**, 1 Queen Anne's Gate, London, S.W.1.

AGENTS, experienced in road construction work (new, improvements and maintenance) REQUIRED by reputable London company of contractors in operation on contracts in London and the Home Counties. Permanent position with every opportunity.—Write, giving full details, to Box V.2724, "The Contract Journal."

SUPERVISORS (REINFORCED CONCRETE)

Due to increased turnover, two additional first-class **SUPERVISORS** are REQUIRED by well-known concrete specialists. Experienced men, preferably used to handling long-term contracts, but top foremen with good all-round experience considered. Good salary and conditions.

WRITE BOX V.2703, "THE CONTRACT JOURNAL."

FOREMAN REQUIRED to supervise outside work of plant hire and earthmoving contractors in the South-East. Should be conversant with most types of plant and have practical experience of them. Age preferably 30-45.—Write Box V.2679, "The Contract Journal."

SENIOR AND JUNIOR SITE ENGINEERS and **QUANTITY SURVEYORS** are REQUIRED for civil engineering and building contracts in England and Wales. These are permanent appointments, with good prospects. Bonus and superannuation schemes in operation. Applications, which will be dealt with in strict confidence, must give details of age, experience, qualifications, and salary required, and should be addressed to: Personnel Manager, **TALFAC CIVIL ENGINEERING, LTD.**, Ettingshall, Wolverhampton.

WORKS MANAGER REQUIRED to take complete charge of new concrete factory shortly to be opened by **ANGLIAN BUILDING PRODUCTS, LTD.**, Lenwade, Norwich. Only first-class and experienced men need apply. The position offers great scope and remuneration commensurate with responsibility and experience.—Apply in first instance, in writing, giving full details, to Managing Director.

CONTRACTORS' TOOLS

There is a vacancy for a young **INSIDE SALESMAN** with a knowledge of contractors' tools and protective clothing. Excellent prospects of advancement.—Apply, in writing, stating age and salary required, to:

Personnel Manager,
GEORGE COHEN SONS AND CO., LTD.,
Wood Lane, London, W.12.

KEEN ESTIMATOR/SURVEYOR REQUIRED for sportsground and sports centre contracts. Previous experience in similar capacity essential. Able to take levels, prepare plans and estimate competitively, particularly on bulk excavation. Salary according to experience. Must be a first-class estimator. Permanent position, age, etc., to **GRASSPHALTE, LTD.**, High Street, Hampton Hill, Middlesex.

CIVIL ENGINEERS REQUIRED immediately for contract site work and design, etc., in Bedfordshire and Essex, by London firm of civil engineering contractors. Applicants should be aged 25/35, with B.Sc. or equivalent. Other requirements are: A sound knowledge of the industry, enthusiasm, and a readiness to take on responsibility. There are excellent opportunities for advancement, and there is a pension scheme operating within the company.

Write Box V.2683, "The Contract Journal."

DICK HAMPTON REQUIRES **YOUNG ENGINEERS** to measure earthwork quantities, assist Contracts Managers and estimating. Permanent future in expanding, successful organisation.—**DICK HAMPTON, LTD.**, Broadview Farm, Blacknest, Alton, Hants. Tel.: Bentley 2241-2.

APPOINTMENTS VACANT

RAPIDLY expanding firm of structural engineers supplying components for large prefabricated buildings REQUIRES two **CONTRACT OFFICERS**. These are new positions, and persons appointed will be responsible for the company's activities in the area allocated to them. They will be based in the Midlands and considerable travelling will be involved. Applications are invited from persons aged 35-40 who have had an all-round experience in the building industry and who are used to negotiating with senior architects and Government Departments.—Write full details of previous experience, salaries earned, etc., to Box V.2658, "The Contract Journal."

SENIOR ESTIMATOR REQUIRED by firm of civil engineering contractors. Head office appointment. Reading area. Permanent and progressive post, with superannuation scheme in operation.—Write in confidence, stating age, full details of experience with past employers, and salary required, to Box V.2653, "The Contract Journal."

AGENTS and **FOREMEN** REQUIRED for housing contracts in Swansea area. Permanent position for suitable applicants.—Please reply, stating age, previous experience, and salary required, to Box V.2659, "The Contract Journal."

JUNIOR ENGINEERS REQUIRED for contracts in Devon. Applicants should have at least three years' site experience with a reputable contractor. The posts are intended to be permanent, and offer excellent opportunities in an expanding organisation. Apply in writing, giving age and full details of experience, to **DEVON CONTRACTORS, LTD.**, Venny Bridge, Whipton, Exeter.

SCOTTISH LAND DEVELOPMENT CORPORATION CONTRACT DEPARTMENT

Have a vacancy for a **TRAVELLING AGENT**, age between 25 and 35. Applicants should have experience in the building and/or civil engineering trades, and be capable of: (1) Supervision of earthmoving contracts; (2) setting out works; (3) measuring up quantities. Major part of work within 50 miles of Glasgow. Transport will be provided. Contributory pension scheme. Permanent appointment to suitable applicant. Salary £850 to £1,000 p.a.—In first instance, write, giving full particulars, including experience, to:

Contract Department,
SCOTTISH LAND DEVELOPMENT CORPORATION,
65 Bath Street, Glasgow.

CAN YOU SELL?—MODERN PLANT SALES need a top-class **SALESMAN** to sell contractors' plant. Successful applicant must have the following qualifications: (1) Have proven sales record (preferably but not necessarily in plant); (2) be between 25 and 35 years old; (3) currently be earning a reasonable salary and not satisfied with present income. Remuneration will be by salary and commission, with no limit on earnings. This vacancy is for a man who really enjoys selling, and wants to join a happy, hard-working sales team, and be well rewarded for his efforts. Modern Plant Sales hold exclusive agencies for J.C.B. hydraulic excavators, Blaw Knox concrete equipment, Liner dumpers, Allam vibrators and Joy-Sullivan compressors.—Write, giving background of experience and all pertinent information, to Mr. J. Ellidge, Modern Plant Sales, Ltd., Wolverhampton Road, Oldbury, Birmingham.

AREA CONTRACTS MANAGER—Suitably qualified Engineer REQUIRED as an Area Contracts Manager in the Sheffield district. Experience of industrial building is desirable but not essential, and proved ability to manage several contracts at once, of individual value of up to £10m., are essential. Applicants should submit full details of experience, salary required, etc., to Box V.2742, "The Contract Journal."

TOWER CRANE AGENCY LOOKS FOR TECHNICAL REPRESENTATIVE. Knowledge of building industry essential. Progressive post which offers scope to keen, energetic man aged 28-40. Willing to travel. Write fullest details, with recent photograph, please, to Box V.2743, "The Contract Journal."

INSPECTORS WANTED for hydro-electric works in Mid-Wales. Send details of experience in tunnel concreting, concrete dam or power house construction.—Write Box V.2709, "The Contract Journal."

BONUS MEASURING CLERK—REQUIRED. Experienced Bonus Clerk for measuring and working out bonus for r.c. construction; all trades. Write, stating salary, experience, and availability, etc., to Box V.2698, "The Contract Journal."

CHRISTIANI AND NIELSEN, LTD.

Civil engineering contractors, REQUIRE an experienced **CIVIL ENGINEER** between 30 and 40, to fill the vacancy of **CHIEF ENGINEER** in the new design department. To the Chief Engineer and to be in charge of the drawing office. Wide experience in R.C. and pre-stressed concrete work necessary, also experience in marine works and piling, preferably acquired on site. Good salary according to age and experience. Also an experienced **QUANTITY SURVEYOR** for senior position. Salary range £1,500 upwards, according to age and experience. Pension scheme in operation. Apply, giving full details of experience, to:

The Secretary,
CHRISTIANI AND NIELSEN, LTD.,
Romney House, Tufton Street, Westminster.

PAVIER CONSTRUCTION CO., LTD., invite applications for the following experienced civil engineering staff for work in the Yorkshire area: **AGENTS**—preferably qualified and with extensive experience in the industry; **SITE ENGINEERS**—to train as Sub-Agents and Agents. Preferably with at least five years' site experience on major projects; **GENERAL FOREMEN**—a number of General Foremen are required for contracts varying from major roadworks, deep sewers and bridgeworks; **SUPERVISORS**—the surfacing department requires a number of Supervisors experienced in road surfacing. Applicants must be capable of ordering their own materials via head office, planning continuity of work, and be able to measure and agree quantities with our clients. These are intended to be permanent positions and carry with them an immediate entry into a first-class superannuation scheme. Excellent prospects, together with generous salaries and other financial benefits. Apply in first instance in writing to Pavier Construction Co., Ltd., Salthair Road, Shipley, Yorkshire.

BUILDING AGENT, SENIOR GENERAL FOREMAN, SITE ENGINEER, SURVEYOR (for ordering materials), **CASHIER** and **TIMEKEEPER** REQUIRED for large contract starting shortly at Sutton Coldfield, Birmingham. Applications invited from experienced men, and the fullest details should accompany same. Write to Box V.2730, "The Contract Journal."

APPOINTMENTS VACANT

CIVIL ENGINEERING contractors operating in South-Eastern Counties **REQUIRE** first class General Foreman to supervise contracts up to £150,000. Excellent opportunity for advancement with expanding company.—Write full details to Box V.2701. "The Contract Journal."

SENIOR ESTIMATOR REQUIRED—Applications are invited from men who are fully experienced in estimating for all types of civil engineering and building works. Pension scheme in operation, and car provided.—Apply in writing, stating age, full particulars of experience, previous employers, salary expected, and when free to commence, to Managing Director, **CURRALL, LEWIS AND MARTIN, LTD.**, 11 Booth Street, Birmingham, 21.

JOINERS REQUIRED immediately for C.E. formwork. Subsidance and bonus on results payable. Occasional Sunday work.—Apply: **SIR ALFRED McALPINE AND SONS, LTD.**, Greenbooth Road, Norden, Rochdale, Lancs.

ASSISTANT SURVEYOR REQUIRED by national civil engineering and building contractors, for general working-up and junior taking-off, at head office. This position is permanent, progressive and superannuated.—Write, giving full details of experience, and salary required, to Chief Surveyor, **SIR LINDSAY PARKINSON AND CO., LTD.**, 6 Lambeth Road, London, S.E.1.

TARMAC ROADSTONE, LTD. **REQUIRE OFFICE MANAGER** for surfacing department, Wolverhampton. Applicants should have good experience with surfacing or civil engineering contractors. Permanent position and superannuation scheme available. Surfacing Manager, Economac House, Dunstall Road, Wolverhampton.

BRISTOL-BIRMINGHAM MOTORWAY BRIDGES SECTION

WILSON LOVATT AND SONS, LTD. invite applications from fully trained men for the following positions. Good terms and opportunity for advancement within the company's expansion programme:—

SECTION FOREMAN
CARPENTER FOREMAN
STEELFIXER FOREMAN
GANGERS

Apply to:

Site Agent, Contractors' Office,
WILSON LOVATT AND SONS, LTD.
Wychbold, near Droitwich, Worcestershire.

CIVIL ENGINEERING contractors have a vacancy for an experienced **ESTIMATOR**, with good prospects for the successful candidate. Applicants should have good general experience in estimating for all classes of civil engineering (not building) work.—Applications in writing, giving details of age, previous experience, and present salary, which will be treated in confidence, should be sent to the Secretary, **BRIMS AND CO., LTD.**, Pandon Buildings, City Road, Newcastle upon Tyne, 1.

GENERAL FOREMEN (Building), Midlands area, for a leading building and civil engineering company with an expanding organisation. Must have carried out large-scale contracts, including concrete-framed multi-story buildings, and be able to adhere to progress schedules and be conversant with planning procedure. High salary, superannuation and profit-sharing scheme.—Particulars to be sent in confidence to J. Wright, Director, **C. BRYANT AND SON, LTD.**, Small Heath, Birmingham, 10.

GENERAL FOREMAN REQUIRED for private street works in Herts. and Beds.—Applications, stating age, experience, salary required, and copy references, to Box V.2729. "The Contract Journal."

DIAMOND DRILLER REQUIRED for large open-cast mine in Ghana. Salary according to experience and qualifications. Liberal life and accident insurances, kit and bungalow allowances. Free passages for self and wife each way (children allowed on the mine, free housing, lighting, and medical attendance. Three months' leave in U.K. on full pay after completion of 12 months' tour. Engagement subject to satisfactory medical examination.—Write full particulars to Box "Z.L." c/o J. W. Vickers and Co., Ltd., 7 Great Winchester Street, London, E.C.2.

CARPENTERS

REQUIRED immediately for bridge contract in Worcester. Production bonus and subsistence.—Apply on site or write to:

General Foreman,
LOMOUNT CONSTRUCTION, LTD.,
adjoining The Rectory, Primsland, nr. Hadzor,
Droitwich. Telephone: Droitwich 2004.

CIVIL ENGINEERING ASSISTANT who has suitable qualifications and experience is **REQUIRED** for planning and design work associated with cement works construction. This will include the design and construction of heavy reinforced concrete foundations, etc., and will provide an opportunity to qualify for Associate Membership of the Institution of Civil Engineers, if this has not already been obtained. A good salary, commensurate with ability and experience, will be paid, and there is a staff profit-sharing scheme, with a pension fund. Excellent welfare and canteen facilities, and very good working conditions. Interviews by appointment only.—Please apply to Chief Engineer, **G. AND T. EARLE, LTD.**, Wilmington, Hull. (A member of the Blue Circle Group.)

CIVIL ENGINEERS, 25-30 years of age, **REQUIRED** to supervise specialised contracts in the United Kingdom, with good possibilities of overseas work on completion of initial training. These positions offer permanent employment with a large and expanding division of an international group of companies.—Applicants should be fully mobile, should write, giving concise details of age, experience and qualifications, and quoting Ref. 232, to the Personnel Officer, **THE CEMENTATION CO., LTD.**, 20 Albert Embankment, London, S.E.11.

REQUIRED for 12½ miles 60in. steel aqueduct, including various river, canal and railway crossings (route of aqueduct from Chester to Run-corn)—**AGENT, ENGINEERS, GENERAL FOREMEN AND GANGERS**—Write setting out in detail past experience, names of employers, and length of time with each employer, to Box V.2681. "The Contract Journal."

CONSULTING ENGINEERS in Westminster **REQUIRE** **ENGINEER** to take charge of site investigations and soil mechanics laboratory. The post offers excellent scope for a well-qualified, energetic man.—Write full details to Box V.2712. "The Contract Journal."

APPOINTMENTS VACANT

ESTIMATOR, experienced in road construction and sewer works, **REQUIRED** by reputable company of civil engineering contractors for work in their London Office. Alternatively, a young man, partially experienced, who is looking for wider scope and opportunity, would be considered. Good opportunity and permanent position.—Write, giving full details, to Box V.2723. "The Contract Journal."

CIVIL ENGINEERING contractors **REQUIRE SITE ENGINEERS** with a minimum of two years' site experience, for various contracts throughout the country. Permanent and progressive positions for suitably qualified applicants. Superannuation scheme. Write full details of age, qualifications and experience to Personnel Manager, **J. L. KIER AND CO., LTD.**, 7 Lygon Place, Grosvenor Gardens, London, S.W.1.

OLD-ESTABLISHED civil engineering and building contractors, Dudley area, **REQUIRE** experienced **BUYER** with full details of progressive, well-paid position, with pension and other benefits, please write, in strict confidence, to the Managing Director, Box V.2741. "The Contract Journal."

BLAW KNOX, LTD.

Have a vacancy for a **PAVER DEMONSTRATOR/OPERATOR**, to demonstrate bituminous pavers, preferably with some fitting experience.—Apply, in writing, to:

Personnel Manager,
BLAW KNOX, LTD.,
Bushey Mill Lane, Watford, Herts.

EXPERIENCED CLERK OF WORKS REQUIRED for supervision of building of factory and research laboratory in Rochester, Kent. Salary up to £1,200 p.a., according to experience and ability.—Apply, stating age and experience, in writing, to **YORK, ROSENBERG AND MARDALL**, 2 Hyde Park Place, W.2.

CLERK for builder's general office. Costing, invoices, etc., experience preferred but not essential. Opportunity for advancement.—Write full particulars, age, salary required, etc., to Accountant, **W. H. GAZE AND SONS, LTD.**, 19/23 High Street, Kingston-on-Thames.

EXPERIENCED FOREMAN REQUIRED for quay construction in N.E. England.—Write, stating age and experience, to **DEMOLITION AND CONSTRUCTION CO., LTD.**, Tees Dock—No. 1 Quay, Grangetown, near Middlesbrough, Yorks.

AGENT/ENGINEER REQUIRED by civil engineering contractors, Southern Counties. Age 30/40. Must be fully experienced in road improvement schemes and major road construction. Permanent position with salary range £1,300/£1,500 per annum. Car provided. Contributory pension scheme in operation.—Write in confidence, stating age, experience, past employers, and salary expected, to Box V.2732. "The Contract Journal."

CHIEF BUYER

Opportunity for first-class man to join progressive organisation. Must have considerable experience as buyer for building and civil engineering contractors. Knowledge of 8 and 10 drawings and apply TARSAG. Good salary offered to right man, with pension scheme and other amenities.—Full particulars, in confidence, to:

General Manager,
CAWOOD WHARTON AND CO., LTD.,
Constructional Department,
Southlands, Harrogate.

BRYANT ESTATES, LTD.—Due to continued expansion, we **REQUIRE** yet another **LAND SURVEYOR** qualified in all methods of surveying. This is a permanent position with transport provided, offering excellent prospects for the right man.—Write, giving full details to A. J. Simons, **BRYANT ESTATES, LTD.**, Whitmore Road, Birmingham, 10.

SALES CLERK REQUIRED, with knowledge of road surfacing work, to deal with inquiries, orders, pricing and deliveries. Alternate Saturday mornings off. Pension scheme.—**ASPHALTE CARPETS, LTD.**, 38 Buckingham Palace Road, S.W.1.

GENERAL FOREMAN REQUIRED in Leicester area, for reinforced concrete work. Must be capable of high-quality workmanship. Apply to **CECIL LTD.**, Wanlip Sewage Works, Syston, Leicestershire.

AGENT/GENERAL FOREMAN REQUIRED immediately for two-year main drainage contract, near Stamford. Capable of setting-out and levelling. Initiative and good essential. Details to **CECIL WILLIAMSON AND CO., LTD.**, Holly Lane, Chilwell, Notts. Telephone 25-4763.

CONTRACTS MANAGER

CIVIL ENGINEER REQUIRED to take charge of the civil engineering department. Attractive position for engineer with initiative, experience and drive. Excellent prospects, good salary commensurate with experience. Car and pension scheme.—Write:

Contracts Director,
LOMOUNT CONSTRUCTION, LTD.,
40 Piccadilly, London, W.1.

CIVIL ENGINEERING contractors **REQUIRE CASHIER/COST CLERK** for site office work in the Salisbury area. Applicants should preferably have had previous experience in general contractors' administration.—Apply in first instance, in own handwriting, to Personnel Manager, **MEARS BROS. (CONTRACTORS), LTD.**, 154 Sydenham Road, S.E.26.

GENERAL FOREMEN REQUIRED for sites in and around Home Counties. Should be fully experienced in house and flat construction. Excellent opportunities exist for the right men.—Write, giving details and salary required, to Box V.2756. "The Contract Journal."

BUILDING, contracting and estate development company, Middlesex, **REQUIRE YOUNG MAN** about 20/25 for mechanised accounts office. Good knowledge of book-keeping and costing essential. Please apply in own handwriting, giving age, present and past employment, and salary required, to Box V.2759. "The Contract Journal."

YOUNG ENGINEER REQUIRED for office of contracts company in Essex. Should have experience in costing, preparing of tenders and quantities in sportsground and engineering contracts. Salary according to qualifications and experience.—Write Box V.2758. "The Contract Journal."

APPOINTMENTS WANTED

CIVIL ENGINEER, 52, qualified, **REQUIRES APPOINTMENT** as **DIRECTOR / GENERAL MANAGER**. Wide and varied association with the industry. Good commercial background.—Write Box W.2641. "The Contract Journal."

AUSTRALIA.—Qualified **CIVIL ENGINEER**, 37, with extensive construction and tendering experience, **SEEKS A SENIOR APPOINTMENT**, preferably Sydney area. Would consider post in allied industries if suitable. Salary level £A3,500. Write Box W.2707. "The Contract Journal."

CONTRACTS MANAGER, qualified, **SEEKS CHANGE**. Varied experience, including major road schemes and bridgeworks. Excellent references.—Write Box W.2717. "The Contract Journal."

CIVIL ENGINEERING CONTRACTORS' AGENT, 34 years' experience, **REQUIRES POSITION** to settle down, preferably with medium-sized firm. All details of experience and references available on application.—Write Box W.2725. "The Contract Journal."

ENGINEER/AGENT, over 20 years' comprehensive site and office experience in roads, bridges, sewage disposal, reinforced concrete works, etc. Preparing measurements and final accounts. **DESIRES POSITION** as **CONTRACTS MANAGER** or **SENIOR AGENT**. West Midlands area preferred.—Write Box W.2760. "The Contract Journal."

For Advertisements received too late for classification see page 1429

WORK REQUIRED

SITE CLEARANCE, BULK EXCAVATION. **JANES AND CO., LTD.**, Trading Estate, Slough. Telephone Slough 20361—Ext. 4.

SAM BOOTH, LTD., Perryment Chambers, 1125 and 1258, SUB-CONTRACT or HIRE: D9s, with Bulldozer and Caterpillar 463 Scrapers.

FOR HIRE, One Drott and Six TIPPER LORRIES. **SITE CLEARANCE**. Direct or sub-contract. **I. W. DOYE AND CO.**, Demolition Contractors, 188 Plumstead High Street, S.E.18. Woolwich 6318.

UPROOTING—TREES, STUMPS, HEDGES, etc. We have the most experienced and all modern equipment.—**T. GRAVESON, LTD.**, Warton, Carnforth, Lancs. Telephone Carnforth 381 and 382.

BULK EXCAVATIONS, any quantity quoted for. Own plant and lorries. **COFF AND SON (EXCAVATIONS), LTD.**, Buckhurst Hill, Chesham, Bucks. Tel. Ascot 1026/7/8.

BULK EXCAVATION WANTED—We have our own staff of qualified Civil Engineers, and have the following machines ready for work: D9s, D8s, D6s, Dozers, Scrapers, etc. Particular attention given to Excavators with all equipments, and a fleet of new Tippling Lorries. No job is too small or too large. **SMITH PLANT HIRE AND CONTRACTORS (CHELTENHAM), LTD.**, Southam Court, 90 Prestbury Road, Cheltenham, Glos. Tel. 52021/56419/56473.

WANTED, EXCAVATION, SITE CLEARANCE AND DEMOLITION WORK. **R. BARKER (PECKHAM), LTD.**, New Cross 3337.

EXCAVATION SUB-CONTRACTS. Technical staff available, to analyse, programme and price complex projects. Particular attention given to finish and compaction. **D9, D8, TD18 and TD14 Scrapers**, Excavators, Loading Shovels and Lorries available with competent and imaginative supervision for execution of work.—**DICK HAMPTON**, Broadview Farm Blacknest Alton Hants. Tel. Bentley 2241.

ALLEN OXFORD GRADERS for **HIRP GRASSPHALTE, LTD.**, Hampton Hill, Middlesex. Telephone: Molesey 4343.

BULK EARTHMOVING, direct contract or sub-contract. Also **BULDOZERS** and **SCRAPERS** for **HIRE**. **FRANK R. WALPOLE, LTD.**, 126 Wing Road, Leighton Buzzard, Beds. Leighton Buzzard 3351.

SPECIALISED EXPLOSIVES SERVICES. **U.K. AND OVERSEAS MOBILE UNITS** coverage on ex-service strong points, sea walls and dangerous structures, etc.—124 Old Shoreham Road, Southwick, Sussex. Tel. Southwick 3791 or Shoreham 4193.

IF TREES, ROOTS OR UNDERGROWTH feature in your contract, we would be pleased to quote for their economical disposal.

BAGSHOT SAWMILLS, LTD., 32 London Road, Camberley, Surrey. Telephone 14.

WANTED, HIRE OR CONTRACT WORK for modern fleet of DW21s, D9s, D8s, 15-ton Rear Dump Euclids and 38RB Face Shovel.—Apply: **BRODERICK AND RYAN, LTD.**, 421 Nottingham Road, Ilkeston, Darby. Telephone 4381/2.

IF GRADING, SEEDING, TURFING AND PLANTING form part of your CONTRACT, we will be pleased to quote you.—**HOLDROP**, 139 Bella Hill, Barnet. Telephone 9111.

TARMACADAM AND BITUMINOUS MACADAM SURFACING WANTED. Barber-Greene (new 1960) and full Roller range to 10 tons. **HIRE, CONTRACT OR SUB-CONTRACT**.—**D. S. O'BRIEN AND CO.**, Olive Mount, Birkenhead. Tel.: Birkenhead 6605.

DROIT SKID SHOVEL BTDs, fitted with Boughton Winch, for **HIRE** at keenest rate.—**JAMES COOPER, LTD.**, 28 Kensington Church Street, London, W.8. Tel.: Western 3412.

SITE CLEARANCE CO., LTD., specialists in removal of trees and roots. Explosion Engineers and Demolition Contractors.—**John Dene**, Quarry Lane, Appleton, Warrington. Telephone: Stockton Heath 309.

BULK EXCAVATIONS AND SITE WORKS undertaken. **DIRECT** or on **SUB-CONTRACT** basis. Quotations given for large or small contracts anywhere.—**S. AND L. BULL BROS., LTD.**, 126A High Street, Winchester. Telephone: Winchester 2264.

SOILING, SEEDING AND TURFING. Site Clearance, Excavation and Levelling Work undertaken in any part of the U.K. at competitive prices.—**GILLIAM, Purvey**. Surrey. UPLANDS 9222/6.

CONTROLLED EXPLOSIVES, LTD., specialise in the fragmentation of mass and reinforced concrete in industrial buildings. Demolition of bridges and chimneys, mass rock, trenching, sewage beds, engine beds, etc., and deep drilling for quarries. Particulars from 11 Church Street, Sudbury, Birmingham. Telephone: Broadwell 3117.

EARTHMOVING, LEVELLING, LAND DRAINAGE, RECLAMATION, etc. Consult the Surface Specialists.—**SURFACE MAINTENANCE SERVICES, LTD.**, 124 Old Christchurch Road, Bournemouth. Tel. 24673. Branches throughout the country.

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THE SITE SURVEY COMPANY

LONDON, S.E.3
TELEPHONE LEE Green 7444

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Further particulars may be obtained from the BOROUGH SURVEYOR, Town Hall, Darlington, to whom Tenders should be delivered not later than the 4th OCTOBER, 1960.

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OFFERS (by FRIDAY, 14th October, 1960) are invited for the FOLLOWING SURPLUS MACHINERY: Marshall VF Bulldozer, 1950, with Spares. Two Lister Trucks, 1949 and 1953, for use on highways.

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For SALE, Ingersoll-Rand 2-Tool PORTABLE AIR COMPRESSOR, Type DE200 (in working order). Inspection by appointment at Council's Depot, 175 Harrow Road, W.2 (Tel.: Pad. 1251—ext. 108). Saturdays excepted. Written offers to BOROUGH Engineer, Town Hall, Paddington Green, W.2, by 10 a.m., 10th OCTOBER, 1960.

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Conditions and Forms of Offer obtainable from the GENERAL MANAGER, Corporation Transport Department, 55 Piccadilly, Manchester, 1. Offers returnable by 10 a.m. on MONDAY, 3rd October, 1960.

VIEWSEY AND WEST DRAYTON URBAN DISTRICT COUNCIL.

TOWER WAGON FOR SALE.

TENDERS are invited for the PURCHASE of a TOWER WAGON, Austin 3-ton chassis with normal cab and Rawlinsons four-section tower (maximum working height 30ft.) with movable platform. Tower operated mechanically and stabilising jacks provided. Vehicle was purchased new in 1955, and may be inspected by arrangement at the Council Depot, Station Road, West Drayton, during working hours. Tenders, in plain sealed envelopes, endorsed "Tower Wagon," are to be delivered to the undersigned not later than Noon on TUESDAY, 27th September, 1960. The Council do not bind themselves to accept the highest or any Tender.

ARTHUR BOOTE,

Clerk of the Council.

Drayton Hall,
West Drayton,
16th September, 1960.

By Order of the Co-Liquidators, K.R. Cork, Esq., F.C.A., and David Steel, Esq., F.C.A. Re: Samuel Butler and Co., Ltd.

STRUCTURAL ENGINEERS' STEEL STOCK, MACHINERY, VEHICLES, OFFICE EQUIPMENT, ETC.

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By Order of S. M. Tidy (Public Works), Ltd. Sale to commence at 10.30 a.m. Refreshments.

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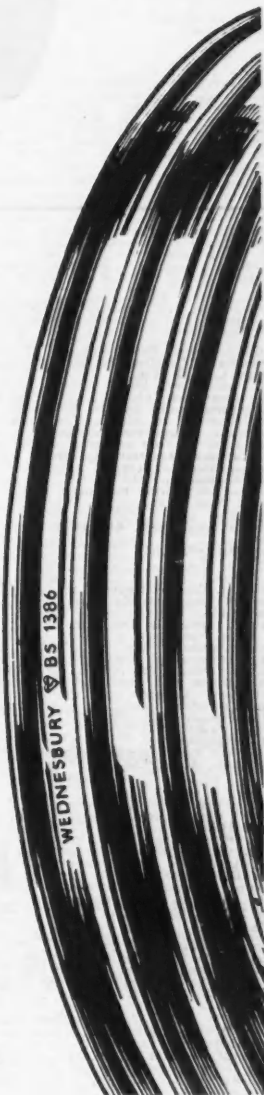
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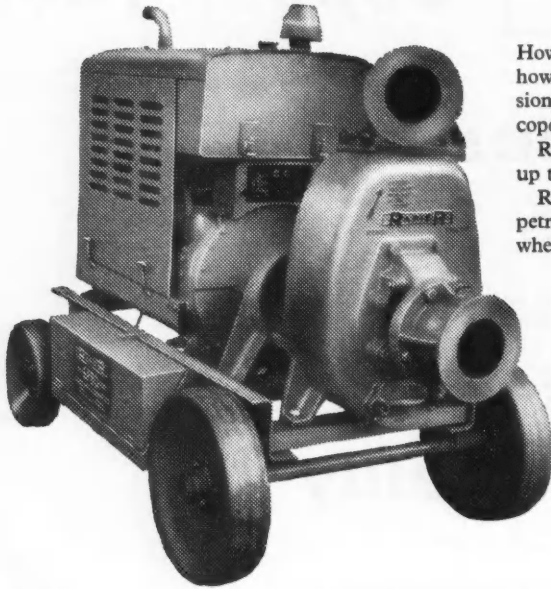
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CITY OF WAKEFIELD.

CONSTRUCTION OF SEWERS, CHAMBER AND APPURTENANT WORKS—INGS ROAD-KIRKGATE JUNCTION.

TENDERS are invited from contractors experienced in such works for the CONSTRUCTION of approx. 15 lin. yd. of 72in. dia. CONCRETE PIPE SEWER (average depth 10ft.), 17 lin. yd. of 48in. dia. CONCRETE PIPE SEWER (average depth 10ft.), BRICK CHAMBER (20ft. x 19ft.), and appurtenant works at the junction of INGS ROAD, KIRKGATE and THORNES LANE, the work also involving the control and diversion of flow in the existing main sewers during construction work.

Plans may be inspected at the Office of the City Engineer, Town Hall, Wakefield, from whom General Conditions of Contract, Specification, Bill of Quantities and Form of Tender may be obtained.

Sealed Tenders are to be returned, in the envelope provided, to the undersigned not later than 9 a.m. on the 10th OCTOBER, 1960.

W. S. des FORGES,
Town Clerk.

Town Hall,
Wakefield,
15th September, 1960.

THE RURAL DISTRICT COUNCIL OF GODSTONE.

FURZEFIELD ROAD SEWERAGE SCHEME—BALDWIN'S HILL.

STAGE 1.

TENDERS are invited for the ABOVE WORK, which consists of the LAYING of approx. 400yd. of 9in. and 7in. dia. STONEWARE PIPE, together with Manholes, etc.

Drawings may be inspected, and Forms of Tender, Specifications and Bills of Quantities obtained from the Engineer and Surveyor at the undermentioned Offices upon payment of a deposit of £2 2s., which will be returned upon receipt of a bona-fide Tender which is not subsequently withdrawn.

Tenders, in plain sealed envelopes endorsed "Furzeffield Road Sewerage Scheme," addressed to the undersigned, must be delivered at this Office not later than Noon on WEDNESDAY, 12th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

M. HAWORTH,
Clerk of the Council.

Council Offices,
Oxted,
Surrey.

MID-GLAMORGAN WATER BOARD.

TENDERS WANTED.

The Board wishes to know of reputable firms who would be interested in and capable of TENDERING COMPETITIVELY for the COMBINED DESIGN AND CONSTRUCTION OF THE FOLLOWING WORKS—

Two Circular Prestressed Reinforced Concrete Water Tanks, each of 3 million gallons capacity and 25ft. depth of water. The tanks are to have flat roofs and are to be founded around the walls and over the roofs. They are to be constructed on partially prepared foundations, the site excavation not forming part of this contract. Both the design and the construction are to be subject to the approval and supervision of the Board's Engineers.

Firms who are experienced in work of this kind, and who desire an invitation to tender, are asked to submit their names to the undersigned before Noon on FRIDAY, 21st October, 1960, with brief details of similar works they have already designed and constructed, stating the location of the works and for whom they were constructed. A limited selection of suitably experienced firms will then be made, to whom further details of the requirements will be given, together with an invitation to submit designs and Tenders.

C. BAKER,
Clerk to the Board.

8 Wyndham Street,
Bridgend, Glam.

SENIOR PLANNING ENGINEERS REQUIRED for newly formed planning department; one to become Assistant Chief Planning Engineer. To work from London head office on projects in various parts of the country. The company's immediate programme includes a number of very interesting projects, and the planning work covers co-ordination of design, pre-tender planning, contract working planning, and development. Excellent opportunities in a rapidly expanding company. Good salary and conditions, pension scheme, etc.—Reply, giving full details, to Chief Planning Engineer, BERNARD SUNLEY AND SONS, 25 Berkeley Square, London, W.1.

SITE CLERK for road and sewer contracts in London area. Permanent and pensionable for right man.—Apply, stating age, experience, and salary required, to Secretary, FITZPATRICK AND SON (CONTRACTORS), LTD., 455 Old Ford Road, London, E.3.

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SUPERVISOR WANTED by expanding London contractors. Should be fully conversant with all types of house and flat construction, and roads and sewers. Successful applicant will take control of several contracts under direct contact with constructional director. Excellent opportunity for the right man. Car supplied. Pension scheme.—Write, giving details of past experience, and salary required, to Box V.2757, "The Contract Journal."

ENGINEER/AGENT REQUIRED to set out and supervise road and sewer contracts in South-West Wales.—DENNIS BENNETT, LTD., Wallington, Fareham. Telephone: Fareham 2220.

BOROUGH OF BROMLEY.

PROPOSED ASSEMBLY HALL AND ADDITIONAL OFFICE ACCOMMODATION.

Contractors who are desirous of submitting TENDERS for the CONSTRUCTION of a proposed ASSEMBLY HALL and additional OFFICE ACCOMMODATION at the MUNICIPAL BUILDINGS at Bromley are invited to submit their names for selection for tendering to the undersigned not later than FRIDAY, 7th October, 1960. It is proposed to invite Tenders from selected firms whose names have been submitted, and Bills of Quantities will be issued in due course.

Preference will be given to firms which have had actual building experience of the type, or similar when submitting their names, references and particulars of work previously executed should be furnished, and the successful firm will be required to provide a surety by an approved guarantee society for £10,000.

LIONEL RAYE,
Town Clerk.

Municipal Buildings,
Bromley, Kent,
19th September, 1960.

BOROUGH OF BUXTON.

QUOTATIONS are invited for the LAYING by Barber-Greene machine of approx. 900 tons of BITUMINOUS MACADAM within the Borough.

Quotations on a fixed price per sq. yd. basis, to be received by the undersigned not later than FRIDAY, 30th September, 1960.

A. C. W. RYLAND,
Borough Engineer.

Town Hall,
Buxton,
19th September, 1960.

KIRKBURTON URBAN DISTRICT COUNCIL.

LIGHTING—PENISTONE ROAD, A.629 (SECOND PART).

TENDERS are invited for the SUPPLY AND INSTALLATION of 88 LIGHTING POINTS on PENISTONE ROAD. Each point consists of a 200-Watt Sodium Discharge Lamp mounted on a 35ft. Steel Column. Details obtainable from the Surveyor, Town Hall, Kirkburton, and Tenders must be returned in a sealed envelope, endorsed "Lighting Contract," to this address not later than WEDNESDAY, 19th October, 1960.

G. G. SMITH,
Clerk of the Council.

Town Hall,
Kirkburton,
Near Huddersfield.

STAINES URBAN DISTRICT COUNCIL.

MAKING-UP OF GLEN AVENUE (PART), ASHFORD.

The Council invites TENDERS for the MAKING-UP OF PART OF THE PRIVATE STREET known as Glen Avenue.

The works comprise the following approx. quantities: 360 cu. yd. Excavation; 740 sq. yd. Hardcore; 740 sq. yd. 2in. Gravel Asphalt; 220 Channel and 143 sq. yd. 2in. Artificial Stone Paving. Specification, Bill of Quantities and Form of Tender may be obtained from, and Plans inspected at, the Office of the Engineer and Surveyor, 240 London Road, Staines, upon payment of a deposit of £2 2s., which will be returned upon receipt of a bona-fide Tender not subsequently withdrawn, together with the return of all documents.

Sealed Tenders, in the envelope provided, endorsed "Private Street Works—Glen Avenue, Ashford," and free from any name or mark indicating the sender, must be received by the undersigned not later than 5 p.m. on THURSDAY, 6th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

F. ENTWISTLE,
Clerk of the Council.

Eimsleigh,
73 High Street,
Staines, Midx.

FORMWORK DESIGNER, capable of taking charge of all formwork problems in the Manchester area. To be based at head office but required to spend large portion of his time in the area in the first instance. Excellent opportunities in a rapidly expanding concrete design—Write in first instance, pension scheme, etc.—Reply, giving full details, to Chief Planning Engineer, BERNARD SUNLEY AND SONS, 25 Berkeley Square, London, W.1.

A BUILDING INSPECTOR IS REQUIRED by the COUNCIL to inspect houses being built in each of the following areas: Staffordshire, Warwickshire, South Wales and Herefordshire, East Surrey, West Surrey, Kent, Northamptonshire. Candidates should have had experience in practical building construction, including supervision, and preference will be given to those holding a recognised diploma. Commencing salary not less than £700 p.a., with provision for annual increments. There are also opportunities for promotion.—Applications, stating present and past employment, age, qualifications, etc. (marked "Building Inspector"), should be sent within 14 days of this advertisement to Chief Technical Officer, N.H.B.R.C., 58 Portland Place, London, W.1.

QUALIFIED ENGINEER/DESIGNER REQUIRED for precast concrete company in Yorkshire. Must be capable of undertaking all types of reinforced and prestressed concrete design.—Write in first instance to Box V.2747, "The Contract Journal."

HIGGS AND HILL, LTD. REQUIRE SUB-AGENTS and SITE ENGINEERS for major civil engineering contracts in the London area and Home Counties. Applicants should have experience of heavy excavation and high-grade concrete construction.—Please write, stating age, experience and when available, to the Secretary, Crown Works, South Lambeth Road, London, S.8.

QUANTITY SURVEYORS REQUIRED for large building and C.E. contracts in the Manchester area. Good prospects and conditions.—Reply, with full details of age, experience and when available, to: M. J. GLEESON (CONTRACTORS), LTD. C.E. Dept., Hareton House, London Road, North Cheam, Surrey.

BOROUGH OF WORKINGTON.

ERECTION OF HOUSING MAINTENANCE DEPOT—MOORCLOSE ESTATE, WORKINGTON.

TENDERS are invited for all trades from building contractors for the ABOVE-MENTIONED WORKS. The works comprise the Erection of Workshop, Stores, etc. enclosed in a compound approx. 220ft. x 100ft.

Tender documents, Specification and Bill of Quantities can be obtained, on application to the Architects, MESSRS. OLDFIELD, SIMPSON AND SAUL, National Provincial Bank Chambers, Workington, on payment of Two Guineas, which will be returned on receipt of a bona-fide Tender.

Tenders are to be deposited with the Town Clerk, Workington, in the envelope provided, not later than 12 o'clock (Noon) on THURSDAY, 13th October, 1960.

The Corporation do not bind themselves to accept the lowest or any Tender.

G. MCKAY PORTER,
Town Clerk.

Town Hall,
Workington,
22nd September, 1960.

BOROUGH OF MORLEY.

APPOINTMENT OF CLERK OF WORKS.

APPLICATIONS are invited for the ABOVE APPOINTMENT from persons with suitable experience. The successful candidate will be required to supervise the construction of a water treatment plant and ancillary works at Withens Clough Reservoir. Preference will be given to the candidate who has had experience in reinforced concrete structures.

The salary will be at the rate of £1,000 per annum, and a car allowance of £100 per annum will be paid. Applications, giving full personal details, details of experience and previous appointments, and the names of three referees, should be addressed to the Town Clerk, Town Hall, Morley, to arrive not later than 17th OCTOBER, 1960. The envelope should be endorsed "Clerk of Works."

E. V. FINNIGAN,
Town Clerk.

Town Hall,
Morley,
York.

EXPERIENCED SITE ENGINEERS/SURVEYORS REQUIRED by civil engineering contractors based in Hull. Fully experienced setting-out measuring, valuations and final accounts, and able to work with minimum supervision. Pension and life assurance scheme in operation. Excellent prospects for right man.—Write, giving full details, in strict confidence, to Box V.2746, "The Contract Journal."

SENIOR PLANNING ENGINEER, with multi-storey construction experience to be in charge of all planning on projects in the Manchester area to work in Manchester, directly under Chief Planning Engineer at head office. Excellent opportunities in a rapidly expanding company. Good salary and conditions, pension scheme, etc.—Reply, giving full details to Chief Planning Engineer, BERNARD SUNLEY AND SONS, 25 Berkeley Square, London, W.1.

AGENT/SURVEYOR REQUIRED for building projects in Derbyshire. Must be fully experienced in all aspects of construction, including roads and sewers, and be able to measure sub-contractors up to final account. Excellent opportunity for the right man.—Write, giving full details and salary required, to Box V.2755, "The Contract Journal."

ASSISTANT QUANTITY SURVEYOR of intermediate to final standard, capable of taking-off and dealing with final accounts. Good opportunity for widening experience. Professional office, Westminster. 5-day week. Luncheon vouchers and pension scheme.—Write, stating experience and salary required, to Box V.2753, "The Contract Journal."

YOUNG GRADUATE ENGINEER, age 22-26, REQUIRED by an old-established firm, to train in all aspects of the company's work, which involves many specialist civil and mining engineering processes. This is an appointment with good prospects to a keen young man in return for hard work and a willingness to travel. Salary, superannuation and allowances will give full recognition to the candidate's academic qualifications.—Apply FORKAY BORING AND SHAFT SINKING CO., LTD., Colwick, Nottingham.

MATERIALS CLERK, able to read drawings, and with site experience on civil engineering contracts, REQUIRED for estimating department in the London office of civil engineering contractors.—Write Box V.2754, "The Contract Journal."

STORES OFFICE MANAGER. Must be fully conversant with stores procedure, able to control male and female staff, manual and clerical. Knowledge of contractors' tools, plant and vehicle spares essential. Good prospects for right man to assume full control of section.—Write details of experience and salary to Box V.2751, "The Contract Journal."

BUYER for London office of civil engineering contractors. Initial position is a Senior Assistant to Chief Buyer. Must have good knowledge of materials for road and sewer department and be able to work on own initiative. Permanent position. Good prospects. Opportunity given to carry out site investigations.—Write details and salary to Box V.2750, "The Contract Journal."

SENIOR SITE ENGINEERS for Manchester area. To be employed in the first instance on a £5m. project: one to be Project Chief Engineer. Good men with multi-storey construction experience and organizational ability required. Excellent opportunities in a rapidly expanding company. Good salary and conditions, pension scheme, etc.—Reply, giving full details, to Chief Planning Engineer, BERNARD SUNLEY AND SONS, 25 Berkeley Square, London, W.1.

SETTING-OUT ENGINEER REQUIRED, good wages to right man.—J. P. MCCARTHY AND CO. LTD., 22 Chantry Close, Kenton, Harrow, Middlesex.

REPRESENTATIVE WANTED to sell contractors' plant and spare parts. Salary £1,000 p.a. plus commission, expenses and car. Only men with first-class connection in the trade need apply.—Write Box V.2752, "The Contract Journal."



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...and last night's

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THE CONTRACT JOURNAL

INCORPORATING
THE BRITISH CONSTRUCTIONAL ENGINEER AND THE CONTRACTOR

THE CONTRACT JOURNAL
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LAWRENCE MCCARTHY

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CONSTRUCTION'S "EXPORT DRIVE"

B RITISH contractors undertook construction work abroad to the value of nearly £124m. in the 12 months ended March of this year. This shows an increase of more than £3½m. over the previous 12 months and is the highest figure recorded since the Ministry of Works' surveys began in 1955. The figures for 1959-60 include the work of 67 firms—four more than the previous year—carried out in nearly 70 different countries.

The value of work undertaken overseas has risen by nearly 80 per cent. in the five years since 1954/55 when the total was £70m. Some of the money paid in respect of the work will, of course, have been spent locally on materials and labour, but the work is also making a contribution to currency reserves. While no figures are as yet available of the amount of foreign currency brought to the country, it is probably fair to assume that the amount earned by these overseas activities has increased at least in parallel with the increase of 80 per cent. in the value of work carried out during the five years.

Meanwhile, the value of total exports and re-exports has risen during the same period by only 20 per cent. and the value of manufactured goods exported by nearly 30 per cent. Few individual export items have increased by more than the 80 per cent. shown by the contractors' figures.

From the figures mentioned it should not be too readily assumed that contracting as a form of export is all "fun." Unlike the majority of products sent abroad, the construction "product" is almost entirely assembled on the site, more often than not in unfamiliar and adverse climatic and site conditions, with legal, labour, transport, material and supervision problems that bear no relation, either in nature or scale, to those at home. The normal difficulties of tendering may be magnified tenfold, while political and credit considerations tend to have an importance and significance that is unknown here. Thus, while the results so far achieved reflect great credit on the contractors concerned, the suggestion by the Government that more contracting firms should participate is easier made than realised.

Having made these points, there is still the fact that about half the construction work undertaken overseas is carried out by six firms, which seems a very small proportion. It appears to indicate that in addition to the remaining large national firms there may well be a number of smaller concerns who would be prepared to venture overseas, if they could be given guidance and encouragement. For exporting is nowhere the monopoly of large firms, and despite the welcome increase in constructional activity within this country there are still reports that many small and medium civil-engineering firms continue to be under-employed, and this may well continue to be the case.

The Export Group for the Constructional Industries, while it concerns itself primarily with the problems encountered by the contracting firms which already export, would be doing a useful job if it examined the possibilities, perhaps in conjunction with the official Export Credits Guarantee Department, of encouraging and helping more contracting firms to build overseas. Construction might then bid fair to underpin the balance of payments, in the same way as it has often underpinned the home economy in the past.

Disturbing and Disappointing

A CCORDING to figures published in the *Ministry of Labour Gazette* there were 8,314 accidents, including 109 fatalities, on building operations during the first six months of this year. In the first half of 1959 there were 7,270 accidents, including 78 fatalities.

This increase in the number of reportable accidents is both disturbing and disappointing. Despite the recent safety drive in the industry it looks as though 1960 is going to be a bad year for accidents. It is up to every employer and operative to see that the second half of the year shows an improvement in these figures. Neither the country nor the industry can afford this terrible waste of manpower and money, neither can the human suffering caused be ignored.

John Sumner's Notebook . . .

THAT the Network Three radio programme "Building Matters" has regained its place on Tuesday evenings—it started again this week—speaks volumes for those who worked so hard last year to put it on the radio map. I see that one of the criticisms of the programme has been overcome. The programme now begins at 7.30 p.m. instead of 7 p.m. This half-hour will make a big difference, I imagine, as listeners should be home and not travelling by the later hour.

The discussions which took place in this radio feature last winter were highly successful. It appears that this has not been forgotten for the new series started with an informal discussion in which a builder, an architect, a civil engineer and a quantity surveyor took part.

Vincent Alford, who succeeds Robert Gunnell as the producer of the programme, tells me that on September 27 the discussion team will deal with the maintenance of buildings, bearing in mind that many difficulties here would be eliminated if buildings were designed and built with more thought given from the start to obviating maintenance works and recurring troubles later on.

Like many others, I look forward to some interesting Tuesday evenings this coming winter.

WHAT is a surveyor? I have a feeling that the Royal Institution of Chartered Surveyors would like to know the answer. The confusion that exists, not unnaturally, in the minds of the public regarding the various branches of surveying makes the public relations work of the R.I.C.S. difficult. During recent months the R.I.C.S. has been a great deal more active in publicising itself and the profession generally, but the impact on the public has not been so great as might be imagined simply because of the range of specialisation within the profession. With surveying the corporate image is elusive.

Some of the problems involved were recognised by Robert Steel when he opened the discussion on "A Profession Without a Name" at the chartered surveyors' annual conference at Bangor earlier this month. He attempted to define the profession of surveying by saying that the common factor in all surveyors' work was land—always they were concerned with problems of developing, valuing, managing or controlling the use of land. Their particular field could therefore be described as land administration. He had a lot more to say on this, but I don't think it took his listeners very far. Maybe I am led to this conclusion because my interest lies principally with quantity surveyors and I look upon them as the building industry's technical accountants—no more and no less.

I note from Mr. Steel's remarks that proposals are now being considered for consolidating the R.I.C.S. examinations which, he considers, would probably help to integrate the profession. I hope that he is right, because the surveyor makes so important a contribution to our national economy—no matter in what field he may be operating—that it can only be a source of frustration to him that his multifarious services are not clearly defined and easily recognised by the public.

THAME Urban District Council, in Oxfordshire, have asked their Housing and Finance Committee to consider providing houses for members of their direct labour force in an attempt to step up recruitment. The present strength of the direct labour force

is reported to be at a "dangerously low level," with the result that much essential maintenance work on Council houses is being delayed.

Now it's a funny thing, but recently I was in the same boat. For months I'd been struggling to find suitable labour to do some renovations and repairs. You know how it is. What with the weather and the Olympics on television things get a bit out of hand.

But could I get assistance? Not on your life! There was a chap who came round saying he fixed gates. I don't want my gates fixed, but I did want the fences repaired and I did want the hedge down by the ditch—an eyesore since last spring—trimmed and cut; and there was a lot of painting to be done. I showed him the hedge. He said "Ar," but he wouldn't do it, not even when I offered five bob an hour. He "just fixed gates, mister" and was off on his bicycle while I was still wondering whether I should offer five-and-six. Then I advertised—on a postcard in the glazed case outside the paper shop by the bus stop. Five-and-six an hour it said. I was getting desperate. And chucked in "elevenes" for good measure.

Nobody came. Then some tiles came off the roof, so I rang up our local jobbing builder. That was the end of my quest for direct labour. He or rather his men fixed the tiles and the fences, they did the painting and, whisper it not in the agricultural workers' union, trimmed the hedge. They put a new lock on the garage door, a shelf and wall cabinet in the kitchen and replaced some rusted bolts in the gutter. I paid a fair price for the jobs, which were all done well.

Now, if I can do that, why can't Thame U.D.C.? Or must they spend sleepless nights speculating upon the political outcome and the anger of those on the housing waiting list if direct labour force recruits jump the queue?

WE are now in a period when many firms which started in business at the time of the big building boom in the second half of the last century are celebrating their centenaries. One such firm is J. and C. Bowyer, Ltd., which was started by Tom Bowyer in Upper Norwood, almost within the shadow of the Crystal Palace after its removal in 1853 from the Great Exhibition site in Hyde Park. The occasion has been commemorated by the publication "The Bowyer Story," a copy of which has been sent to me by a friend. It is one of the most attractively produced and well-written accounts of a building firm's history I have come across.

Strange to think that Upper Norwood, now a seething London suburb, was considered in 1860 to be something of a health resort standing high on a hill above the smoke and fog of the metropolis. The history of the locality and beyond since then is largely Bowyer's history. Leslie G. Gray, the present managing director, joined the board in 1950, after nearly a score of years as a director of a large provincial firm. Somehow I have the idea that his approach to his job is epitomised in the final paragraph of "The Bowyer Story." It reads:

"Many firms can boast a history that spans a hundred years. Bowyers are not unique in that, and its present directorate would not pretend that it has any responsibility for the achievements of the past. If any credit for those achievements is to be handed out it must of course go to those many employees—some of whom are still with the firm—

who in past years helped to build a business of which they were and are justly proud and of which the present Board are no less proud. Together, by continuing to give first-rate workmanship and willing service, they are determined to ensure that the name of Bowyer shall stand high in the future as it has done throughout the last hundred years."

It is an approach which augurs well for Bowyer's future.

ONE of the building trade journals I always look forward to reading is that colourful (literally as well as metaphorically speaking) organ of the N.F.B.T.O.—*The Operative Builder*. It's a jolly good four-penn'orth. This month's editorial deals with Morgan Phillips' "well-written and unfortunately necessary" pamphlet on "Labour in the Sixties" and agreement is expressed with Mr. Phillips' contention that what will assuredly destroy the Party is the continuation of sterile internecine strife. One way of ending it, the editorial suggests, is to "cease shouting at one another through the columns of the capitalist Press," which the leader writer reckons is "about as useful as a directors' vote of thanks."

Curiously enough the president of the N.F.B.T.O., J. H. Mills, has something similar on his mind. For in his contribution to the current issue he gets on to the subject of the future of the *Daily Herald* and writes: "If the Trade Union and Labour Movement cannot stand the clash of argument, of serious debate on the many problems that assail it, it may as well pack up at once. No personalities, please, but debate on principle, on tactics, on strategy," on what you will, but no personal abuse."

The building operatives' leaders practise what they preach, it seems, for on another page of *The O.B.* there is recorded the A.U.B.T.W.'s award of a free card to an outstanding member, Sir Richard Coppock, general secretary of the N.F.B.T.O. The actual presentation was made by Sir Luke Fawcett, himself a retired free card member of the A.U.B.T.W. What I liked about his remarks and those of Harry Weaver, vice-president of the N.F.B.T.O., and George Lowthian, the general secretary of the A.U.B.T.W., on this occasion at Paignton was the stress laid on the accomplishments and achievements within the operatives' organisation during Sir Richard's general secretaryship. And there have been plenty during the turbulent period since 1921. If unions in other industries followed this example and gave more time to constructive work there would be less time for negative bickering between personalities. Still, it's easy to tell the unions what to do; it's much more difficult to be right.

Incidentally, next year Sir Richard will have been general secretary of the N.F.B.T.O. for 40 years—what an achievement that is, to be sure.

L.M.B.A. MEDAL PRESENTATION

The annual presentation of Silver and Bronze Medals by the London Master Builders Association to outstanding craft apprentices and students of builders' quantities will take place in Carpenters Hall on Friday, November 4.

The medals will be presented by Major Sir Charles Maclean, the Chief Scout. The Lord Mayor, Alderman Sir Edmund Stockdale, will preside.

C.M.P.E. HANTS. AND SUSSEX BRANCH FORMED

The newly formed Hants. and Sussex Branch of the Contractors' Mechanical Plant Engineers met this week at the Black Dog Hotel, The Square, Emsworth. Branch hon. secretary is Mr. A. E. Coole, 9 Fairmead Walk, Cowplain, Portsmouth.

Continued from previous issue.

HIGHWAY AND BRIDGE DEVELOPMENTS IN THE U.S.A.

"Great Deal of Research Going on"

AFTER commenting on the efficient planning of road schemes in America, Mr. O. DAVIES (joint managing director, Leonard Fairclough, Ltd.) said that a great amount of research work was going on in all fields.

From the contractor's point of view the findings from research were usually most helpful, but their practical application in the field must be controlled by the practical and experienced engineers on the site, and not through the white-coated laboratory assistants.

American contractors to whom he had spoken had fully endorsed this view and had said that experience had encouraged them to employ research engineers, but always in the background, keeping them as far as possible away from the actual carrying out of the work and in a consultative capacity.

Very extensive use was made of models for the various projects; he had seen several constructed to the most intricate detail, and obviously they had cost quite a lot of money. They were in far more detail than he had seen in any models in this country. He commended that practice. On two sites the constructors said they had the models with the contract documents.

He was most surprised to see the typical American contractor's site set-up. The palatial site offices and accommodation he had expected were conspicuous by their absence and, instead, a few old timber shacks and caravans sufficed. It appeared that more attention was given to parking the workmen's automobiles.

This was also apparent in housing construction, where quite often more than half of the total superficial area was allocated for garaging.

The construction methods and equipment used on the earthmoving, paving and constructional work (particularly housing) were familiar to us in this country, having been in use mainly for airfield construction and opencast coal working.

Among the slides shown by Mr. Davies were some illustrating the vast amount of earthmoving which was necessary in connection with a number of works. The earth was moved by dragline and loaded into lorries, and the contractors were very careful to put the spoil, where possible, very near to other roadwork where an embankment would have to be constructed.

Commenting on some of the flyovers he showed one which seemed to be of rather complicated construction, and said he felt sure we could design more pleasing structures, possibly a little easier to construct. In some cases also he felt that a little more money could have been spent on finish.

Illustrating what he was told was a typical country road cross-section, he said it was as good as those on our main roads. Another matter he mentioned in connection with excavation work was that the Americans had wonderful ideas on safety.

HANDLING THE TRAFFIC

PROFESSOR W. FISHER CASSIE (professor of civil engineering, University of Durham) discussed the handling of traffic. The more the visitors to America saw of the handling of traffic in cities where the cars/population ratio was five times as great as in this country, he said, the more it was

evident that, after the engineer had built his motorways and had installed traffic lights which almost thought for themselves, there remained the human problem. Schemes of traffic control must be adapted to produce the right result, taking into account the reactions and wishes of the people concerned, the drivers.

The difference between the U.S.A. and this country in respect of traffic control lay in the type of control exercised. Our land-use planning, our green belts and the control of the appearance of cities, were the envy of thinking Americans. They had no such control over garish commercialism. Their close control of the vehicles themselves, however, was far in advance of what we had as yet been able to accomplish.

Professor Cassie made a three-prong attack on the problem of keeping traffic moving—urban motorways, city street control, and parking—and particularly on the behaviour of drivers faced with the engineering facilities provided and the regulations governing them.

Urban motorways (freeways, expressways and tollways) formed but one part of the plan of control of vehicles. Contrary to popular belief, American highway and traffic engineers were not always unwaveringly behind schemes of indefinitely extended motorway construction; other steps were often more effective.

Central Reservation

In the development of the motorway in the United States, both rural and urban, the central reservation or "medium strip" had recently been given particular attention. The most serious accidents occurred when an out-of-control vehicle left its track and crossed the medium strip to meet opposing traffic on the other carriageway. Two recent solutions to improve safety were of note. One, which would be of sound application on rural motorways in this country, was the widening of the central reservation to form a broad ditch of Vee shape with side slopes of 1:4. Out-of-control vehicles were likely to end their careers in this depression, whose sides were steep enough to prevent egress or rebound.

The second applied more to urban motorways where the central reservation was narrow; it was a new type of central barrier. The more usual channel section mounted on wooden posts had been found wanting, causing somersaulting of cars, or rebound back into the original stream of traffic. The new design was a cable chain link barrier carried on prestressed cables. It was developed by the Californian Division of Highways and was quite new. As had been shown by radio-controlled experiments, a car striking that fence even at 60 m.p.h. could not penetrate, and the chain-link mesh separated from the cables, boiling up in a cocoon around the car to prevent rebound.

In cities where the population/car ratio was low, densities of flow of 2,000 vehicles/lane/hour were effectively controlled by both upper and lower motorway speed limits, rigidly enforced. The effect was to cause the urban motorways to carry the cars *en masse*; one was reminded of the transport of materials on conveyor belts. There was very little overtaking, and such as did occur was at a low speed differential. The American driver knew that the odds were strongly in his favour, that if he retained progress at the permitted speed on

the motorway he would reach his destination without undue delay, and that haste was unproductive.

Such assurance, so lamentably missing in British cities, eliminated the exasperation and "thrusting" induced by irritating delays, often the cause of accidents. Even in California, where the population/car ratio was as low as 1:6, a distance of 1,100,000 vehicle miles was covered for every accident on an urban motorway.

Urban motorways drew off traffic from surrounding land as a land drain drew off water. Suburban streets were not loaded by through traffic seeking an unobstructed route. The American motorist followed no privately designed labyrinth through back streets to reach his office more quickly than by the main arteries—a technique familiar to the Londoner. The obvious route in the U.S.A. was via the motorways and that was the one the business man always took.

That fact was underlined when there was an accident or stoppage on the motorway. In the larger cities, cars were likely to be informed by a helicopter observer, via their normal car radios, of traffic jams or obstructions. Advice might be given that cars should temporarily leave the motorway and take to the ordinary city streets.

City Streets

Turning to the city streets, he said the traffic engineers and their departments were normally concerned only with traffic which had left the motorways and was using the older streets. Their policy was that the traffic should flow in an uninterrupted stream day and night; when more traffic was likely to appear at peak periods they did everything possible to provide more lanes for travel.

The Traffic Engineering Department of an American city might be a separate branch of city administration equal with the others, such as the City Engineer's Department, or it might be a branch of Public Works or Public Utilities. Some traffic engineers, such as Commissioner Wiley of New York, had the power to put decisions into effect. They had no need to go to the City Council or to have their ideas argued over in Committee; the decision was looked upon as a professional task and was left to the professional officer.

To the end of keeping the traffic moving, the convenience of the individual was sacrificed wherever necessary. In downtown Manhattan, for example, side streets were packed with dozens of closed and loaded vans awaiting the early evening, when they would be unloaded. In the meantime, van crews had to be paid for an unproductive day.

The American traffic engineer was quite ruthless in his endeavour to increase the flow on main streets where full capacity was required. A sign indicating "No Parking At Any Time" was respected and parking garages thrived. Even slow travel was impossible, especially on the urban motorways, where 40 m.p.h. was the lower limit of speed permitted. On some streets the "No Parking" regulations applied only at rush periods (about 2 or 2½ hours morning and evening).

In Chicago there were 219 miles of kerb where parking facilities were withdrawn during rush periods; this withdrawal of

parking privilege applied even where parking meters were installed, for it was well recognised that even the revenue from parking meters could not be compared to the economic benefit of a further lane for moving traffic.

Improving Capacity

Having cleared his main routes of standing vehicles, the traffic engineer then submitted them to every possible device to improve capacity. The rectangular layout of most of the big cities allowed, much more than in Britain, the use of one-way streets, which might well reduce accidents and increase flow. The eight-lane motorways could be adapted to morning and evening tidal flows, although the "hydraulic fins" of Chicago's Outer Drive were not being repeated elsewhere. The more usual control was by lights suspended above each separate lane at intervals. A simple switch from red to green in the centre lanes allowed of adjustment of facilities for heavy flows.

In the U.S.A. the left turn at intersections—as was the right turn here—was a source of many delays and accidents. In some areas special lanes, in the lee of what were known as "pork-chop" islands, were provided for left turns. These lanes were given a special signal light distinct from the sets controlling direct flow. The left-turning traffic was positively marshalled and given an advance green to clear it out of the way of the main stream. Further, those turning vehicles which must wait for a cycle were stored in the special lane without disturbance to flow. Where space permitted, the road was widened at the throat of the intersection to provide extra lanes for left-turning vehicles.

Giving a list of other devices which had, together, achieved improvements in flow in the city streets, he said that Mr. Ross Shoaf, city traffic engineer of San Francisco, had reported increases of 175 per cent. of traffic intensity compared with 20 years ago, but improvement of flow by 63 per cent.

These devices were overpasses of short length, lifting heavy flows over an intersection; radar counting of traffic on its approach to signals; signal installations accommodating phases to traffic flow; one-way street systems; narrowing of pedestrian footpaths; no-stopping tow-away streets.

On motorways adequate signposting was always in evidence; there was prohibition of turning movements; co-ordinated traffic signals to give steady flow past a series of intersections; channelling of traffic at complex intersections; and widespread use of paint to mark lanes, offset centre lines, intersection guide lines and multiple turning lanes.

Parking Provision

The next section of the Paper was concerned with parking provision, which had received little municipal attention there until recently. It was apparent that the idea that a City Traffic Engineering Department should concern itself with providing off-street parking was novel to the American engineer; the visitors were shown municipal parking enterprises as something unusual and worthy of note, until a short time before their visit, off-street parking was considered to be the concern solely of private enterprise, which was assured of a clientele for such facilities, for the city regulations made it impossible to stop on the highway on main routes.

Thus, although kerb parking space and parking meters (there were 50,000 in New York) were provided by municipalities where traffic lanes were not required, there was no further attempt to give the motorist somewhere to stop. As traffic had increased more parking space was required, yet less kerb parking was available. Further, it had become apparent that private enterprise did not always give the type of parking service required. The municipalities had thus recently moved in on the parking market with parking places and under-

ground garages; land was cheap under the squares.

Next, Professor Cassie turned to the Universities, some of which had thorough training programmes for all categories of officials and individuals dealing with traffic. During the tour the British party had visited the two most important of these organisations—the Traffic Institute at Northwestern University, Illinois, and the Institute of Transportation and Traffic Engineering of the University of California. These Institutes, within the Universities, were autonomous, but linked in various ways to the academic departments (e.g., Civil Engineering) and to other branches of university activity.

At Northwestern University, on the outskirts of Chicago, the Traffic Institute, which formerly was concerned almost exclusively with police training, widened its field of activity in 1946 to embrace traffic engineering, legal work and other aspects of highway administration. It now had a staff of 50 and a budget of \$4m. The Institute was now linked with the Transportation Centre, set up only a few years ago to deal with the widest possible field of operational and economic problems of all forms of transport. The Transportation Centre was affiliated with the University and also organised research, short courses for those in practice, and publications. It acted as an integral part of the University and, since it was set up in 1956, 111 post-graduate students had taken advanced courses in transport for higher degrees.

Primary Object

In California the Institute of Transportation and Traffic Engineering was part of the University there and its primary object was to provide a broad programme of instruction at post-graduate level. The special fields of transport covered were chiefly highways and air transport. Planning, economics, public administration and statistics formed part of the course, as they did in the few traffic courses we have in this country. Each student in his work for a master's degree must carry out a research project. There was also opportunity for further study towards a Doctorate; and in all these courses the subject of traffic engineering was, as Professor Harmer Davies had put it, "a node in the spectrum of studies concerned with transport."

These two Institutes were providing the highway administration of the United States with a corps of men ranging from those who had specialised in particular aspects of research and study to those who had taken only a short course for a week or two.

Summarising, Professor Cassie said the motorways formed an effective draw-off of traffic, carrying large volumes at high speed and relieving the city and suburban streets of their heavy traffic flows. There were intersections which appeared to be very complex when seen from the air, but they were not complex for the motorist in finding the route he wanted.

The urban motorways of the U.S.A. (although of small mileage in relation to the total street system) were effective in relieving congestion in cities, but depending for their effect on the city parking facilities. Wherever the visitors went, the concepts of traffic engineering permeated the entire process of conceiving, justifying, locating, planning, designing and operating the roads and the control devices now required for vehicular traffic.

Discussion

COL. T. E. ST. JOHNSTON (chief constable, Lancashire) said that having had the privilege of taking almost the same trip, his observation was that the Americans had little to teach us about rural motorways, except in regard to the speed with which they built them. We were very much in the kindergarten stage in dealing with them in the towns of this country.

A suggestion had been made that there should be a motorway police force in this

country. The State Highway Control in California was especially set up to deal with the main roads; it was mainly a traffic organisation. He was sure it was right that we should not divorce the traffic police from the ordinary police in the country; separate police forces gave rise to complications.

Some of the police authorities did not want their police to take additional part in policing the motorways until the Ministry of Transport paid for the extra police and vehicles. However, they had got together, there was a Traffic Committee at the Home Office and they had worked out a scheme for policing the motorways which they hoped would extend throughout the country.

Telephones had been provided by the Ministry on M.1 and on the Ross Spur, and he appealed to surveyors, when preparing their plans to include money with which to provide telephones. He believed that on M.1, 1,800 drivers per month were using the telephones connected to the police stations.

It was felt that there should be one police car for every 10 miles of road (or 20 miles of carriageway) as a minimum. There must be an adequate number of policemen, police stations, cars, and telephones for the public.

Professor Cassie said it had been suggested that in America the traffic speeds were sometimes assessed by the helicopters which were looking after the traffic. That might explain why everybody there seemed to observe the speed limits, whether or not there were police cars in sight.

GARAGES AND OTHER PARKING FACILITIES

Mr. F. M. BOWEN (partner, Scott and Wilson, Kirkpatrick and Partners, consulting engineers), who dealt with this aspect, confined his remarks primarily to off-street parking facilities the British party had seen in the U.S.A.

These facilities comprised two broad categories:

(1) Parking lots, which he sub-divided into two groups (a) those specifically located, planned and constructed for the purpose, usually by or under control of public or city authorities, and (b) those more akin to our bomb-site areas, i.e., open sites, with few if any specific facilities, and commonly run by private firms to meet the current demand for off-street parking at relatively low cost.

(2) Garage buildings (Auto-ports), under ground and above ground.

Illustrating an example of parking lots, in Rego Park, in the New York environment, he said it was situated near and connected by underground walkways to a subway station. The total capacity was 1,200 cars, and both short-term parking (payable through meters) and longer term (payable by toll) were catered for. Charges were 10 cents an hour and 35 cents for a day. The artificial lighting and other facilities were particularly good.

These lots were being provided notably in New York and other, eastern cities to encourage suburban dwellers (commuters) to end their road journey clear of the central areas and complete them by train or bus. This was one of the three primary points on which the New York Traffic Department's present policy was based, and he had found evidence that it was working in practice.

On-street Parking Reduced

Parking lots also assisted to reduce on-street parking by shoppers. In the same category he placed the parking areas almost universally provided adjoining the new shopping centres. Many of these areas were surprisingly large, as was the number of cars in them. Evidence indicated that such facilities were distinct assets to the shop owners, and must surely help materially to reduce the numbers of stationary vehicles on the roads.

Privately owned plots, this category (b), were seen in New York and other eastern and Middle West cities and towns

(in his experience the tolls, at least near New York, were more than in the city-owned parks, being up to a dollar a day). But Los Angeles provided the outstanding example of widespread use. There, hundreds of acres appeared to be devoted solely to car parking in and near the centre of the city. Nevertheless, the tolls in many cases did not seem excessive compared with those charged in the east. The conditions there were admittedly abnormal, because practically everybody used private cars, and public transport was apparently neither demanded nor provided in the proportion which was usual elsewhere.

Summing up on open parking lots, he said they constituted a key point in traffic programmes throughout the U.S.A. In many places the official ones had been planned and designed with great care and foresight.

Coming to garages, he said all the major cities visited also included them, both above and below ground, as another key point in their road traffic programmes. The programmes in many cases included plans and financial provisions which were astronomical compared with our own, and they should provide food for very serious thought, bearing in mind that without exception the primary worry voiced by the American traffic heads was that they had not been allowed to start early enough and, therefore, might not be able to catch up and keep pace with the public needs.

In regard to the structural design and engineering of the garages, he concluded that there was little of outstanding interest which his audience had not seen or read about already. The most common forms of construction were (a) encased structural steelwork with simple reinforced concrete floors and (b) reinforced concrete flat slab construction. The former was more common in the east than in the west, and on the whole reinforced concrete predominated. He felt that on the purely structural aspects we were in no way behind and, indeed, we were perhaps a little ahead on the structural engineering.

Selected Examples

Illustrating some selected examples to give an impression of what the party had seen, he referred first to the Brooklyn underground garage, New York, having a capacity for 700. It was constructed in an open cut, and a floral park was laid out over it. The cost was \$2,300,000 plus \$300,000 for the park. The charges were 10 cents for half an hour, \$1½ all day.

Of the special features he mentioned the gentle ramps from the entrance and the extra light intensity at the entrance. There was automatic air sampling equipment which gave constant check on carbon-monoxide content throughout the garage and adjusted ventilation to suit. Automatic check on receipts was provided. Automatic coloured signals directed drivers to vacant bays; spring antennae were used to earth static electricity.

During the first two weeks the facilities were free of charge, to attract the public during the "running in" period. No petrol or oil, etc., were sold there, in order not to affect the businesses of ratepayers owning service garages.

The garage was operated by the city authorities, but it was intended to select private operators by open tender later. It was expected to pay for itself in about four years.

After illustrating a comparatively low overground garage in Chicago, he said that some of the 10 taller multi-storey garages built by the city since 1955 as part of its current programme were most impressive structures. He showed one of them, which contained 14 parking floors providing space for 715 cars. The structural frame was of reinforced concrete and, in essence, there was a central tower with open frames on each side. There were no exterior walls but, instead, screens of stainless steel wires.

It was common practice in Chicago for the garage operation to be let under contract to commercial organisations.

The main examples of current practice in the west were seen in San Francisco, where car parking was big business. Unlike New York and Chicago, said Mr. Bowen, petrol and servicing were commonly provided in garages, to pay off the capital outlay as soon as possible. Some of the garages were built by non-profit-making organisations, sponsored by citizens and financed by interest-free bonds from the Federal Government; the undertakings would revert to the city when paid off.

It was noteworthy that property in the vicinity of these garages was said to have increased appreciably in value. As might be expected, the structures there generally had been designed to resist earthquake forces.

Underground Garages

There were several underground garages built under the city parks and the party visited one at the Civic Plaza, completed in 1960. Unlike some of the other garages, this one had not the problems integral with the steep grades of many San Francisco streets. Its construction cost was \$3,400,000; capacity 954 cars self-parking or 1,461 cars attendant parking (about one-third more, as elsewhere). Its total area, on three main levels, was 356,000 sq. ft., including ramps, cloak-rooms, etc. Construction was in the form of reinforced concrete flat slab 30ft. by 27ft. 6in. column grid. All levels were equipped with mechanical ventilation.

An impressive structure was the Downtown Centre Garage, which contained a basement and 10 other parking levels, including the roof. It was put into operation in 1955. (There was a description of it in the booklet of the Joint Committee for Structural Concrete.) Mr. Bowen thought it was one of the first, if not the forerunner, to persuade merchants to offer free parking and to provide an extensive lobby with show windows for those merchants to exhibit their goods. From both operational and cost angles it had apparently exceeded all expectations; and he suggested this experience, apparently common to virtually all the projects the British party had visited, was a very significant point for the authorities in Britain to bear in mind.

His final illustration was of a narrow 18-floor reinforced concrete structure in Washington, D.C.; 16 floors were above ground and two below. It was operated entirely by one attendant and no driver entered the building. Its capacity was only 72 cars, but the site was only 25ft. wide by 67ft. deep and the project, though obviously of limited application, showed what could be done successfully to provide parking facilities in a very busy and congested area.

General Policy

Summarising on garages, he said U.S. policy generally was to aim at simple but sound and economical construction with extensive mechanical, electrical and fire equipment and services. Facilities for users were carefully planned and well maintained and the standard of cleanliness was impressive. All cities appeared to be willing, with or without Federal or State aid, to spend considerable sums not only in providing garages themselves, but also to lay out and plant parks above underground garages.

His most lasting impressions on garages and parks generally were of the vigour, efficiency and vision with which engineers and civic dignitaries in the U.S.A. were tackling the parking problem. As with roads, the basic approach seemed to be that, if a facility were proved to be needed by the general public, it should be provided, and the financial requirements, however difficult, should be met without undue delay, if necessary by the city authorities or the State or Federal Government.

Discussion

Mr. WALLACE EVANS, who commented particularly on Professor Fisher Cassie's

constant use of the term "traffic flow," said it seemed that the Americans had an almost diametrically opposite point of view from that which used to be prevalent in this country. For example, in considering what to do at an important junction it used to be said that we would provide a roundabout because it would slow up the traffic. He thought the Americans took the opposite view and provided a cross-over because it would enable the traffic to flow through. He suggested that we might very well emulate in this country the American point of view.

Emphasising again Mr. Bowen's remarks about the eagerness of the authorities in America to provide off-street parking places, he said there was very good sign-posting on all the major roads there. Some of the instructions were very terse; they did not put up a sign which stated "Stop at major road ahead," but just used the word "Stop." So far as he could see, all the drivers obeyed the signals.

COUNTY ALDERMAN C. W. DODDSON (chairman of the Highways Committee, Lancashire C.C.), in a comment on the pictures which had been shown of American bridges, invited the opinion of Mr. Davies as to how they compared with those in this country.

Mr. Davies said his general impressions were that our own bridges were good to look at; we did pay more attention to finish and he felt that we were producing nicer looking structures than he had seen in America.

The contractors here would give the engineers what they wanted so long as they paid for it; naturally the contractors wanted to avoid spending more than they were receiving, but they did take a real pride in achievement.

Beginning of Problem

Mr. K. E. AINSWORTH (consulting engineer), said it had been stated that in Los Angeles the population/car figure was 1.6 people per car, and the figure for the people going to work by car was 1.1, so that 10 people in 11 went to work by car. He believed that in London the generally accepted figure for people using public transport was 9 in 10. So that we were at the beginning of the problem. About 70 per cent. of the area of metropolitan Los Angeles consisted of either car parks or roads. He did not think anyone of us could imagine 70 per cent. of the West End or the City of London consisting of car parks, and we did not wish to.

Again, for providing parking places the Americans were raising money by bonds in many cases; they were able to pay off those bonds in half the time originally anticipated and in some cases considerably less than half the time. Why were we not falling over ourselves to "get in on the racket?" The Americans were making a profit on parking facilities, and he could not quite see why, if we had the same kind of approach, we could not do the same. Mr. Baker had said that morning, in comparing our position with that of the Americans in matters of traffic and highway planning and construction, that it was largely a matter of scale; Mr. Ainsworth thought it was a matter of approach.

One was impressed not only by the ability of the Americans to get on with the job, but also by the global way in which they considered their traffic problems. They were awakening to the realisation that they had neglected their public transport system, certainly in places such as Chicago. In the North Western University at Illinois they had considered the problem of moving people to and from their work as a whole, taking into account all the available facilities—buses, trains, subways and cars. Were we doing that here, or was it that we had separate authorities looking after the surface railways, the underground and the public service transport by road? Did we need to develop our facilities for inquiring into the needs of large communities such as

those of London, Manchester and Birmingham and to try to plan the development of each one of them?

MR. D. R. SHARP (Cement and Concrete Association) said that, whilst he had not the pleasure of accompanying the British party on their tour, he did visit about a year ago many of the places they had referred to, and their views coincided with his to a large extent.

He had found that the work was planned in more detail by the engineers there than perhaps was done in this country. As to the quality of workmanship so far as concrete was concerned, he had found it generally excellent; in particular the attention given to levels and to lines was quite outstandingly better than was common in this country. Surface finish on the roads was extraordinarily high.

Owing to the fact that labour was so much more expensive in America than here, the contractors went to great lengths to avoid using it as far as possible, not only for that reason, but because it was unreliable. He referred to a bridge of about 200ft. span over a depth of about 100ft., a box design in reinforced concrete. The normal procedure would be to use scaffolding with the shuttering, but there they had the shuttering of the solid base, which was not only cheaper, but more reliable.

Another point was that the contractors working on large road schemes did not use the public roads for carting materials to the site, for two reasons, that they could overload their vehicles and could also drive them more quickly and were not likely to be held up by traffic congestion.

He was interested in Mr. Bowen's point that in city areas in America the presence of multi-storey car parks was appreciating the value of the property in their vicinity and the authorities were encouraged to redevelop. The most successful of those garages were those with open-sided structures; the older ones were closed in and they looked rather horrible. The simple slab and column structure with open sides was not only economic, but ought to be very pleasing.

Mr. Bowen agreed with Mr. Sharp with regard to levels generally, and said he had found that feature most impressive.

Speaking of the open-sided garages, he said that in America they had a rather ingenious barrier of stainless steel stressed wire which was hardly visible. He had seen very few of the mechanically operated garages, and in referring to one of them he said it did not impress him as being at all efficient.

FINANCING AND ORGANISATION

MR. H. S. KILICK (chairman of the Pavings Development Group) submitted a Paper in which he set out the financing and organisation of the American highway system, and gave figures of the very large sums of money which had been and were now being devoted to the construction of the highways.

As in Britain the responsibility for the building of highways and roads lies with the Ministry of Transport or the appropriate councils, so too in the United States the responsibility for the normal road system lies fundamentally with the Federal Government and the States concerned. The Federal Aid Highway Acts in America, he said, had served to facilitate the co-operation between the States and the Federal Government, which was essential.

He commented that in America they had made a survey of their anticipated needs in 1975 and were attempting to meet them before that date. We, however, were following a programme which was known to be inadequate before it started and which, with the increase of traffic, would leave us further behind than we are now. Our Government had not attached the great importance to roads that had been attached to it elsewhere.

In 1959 the expenditure by the central Government on roads in this country amounted to only 0.16 per cent. of the

gross national product. In the U.S.A. it was more than 2 per cent. in 1958, in Western Germany it was more than 3 per cent. in 1956; and in both those countries the expenditure was known to have increased since those years. Recalling the references made to the difference of scale as between this country and the U.S.A., he said the difference in scale did not justify our present performance.

He realised that he was preaching to the converted. But our politicians were not convinced, their attitude still seemed to be to do the least possible and to fall back on new restrictive legislation. Dangerous drivers must be punished; but not all drivers were dangerous or drunk. The only solution was to force our Government to give the same priority to roads as other countries were doing. If public opinion were aroused, the money would be found.

The road system was a capital asset of known value. If it could not be paid for year by year, why not pay over the life of the roads? Why not toll roads, why not a bond issue? It was easy to put forward reasons for doing nothing. Unless something was done, the skill of the engineers and other experts concerned would not be fully used; and when public opinion was at last sufficiently aroused the engineers and others connected with road building industry would be blamed for this state of affairs.

Discussion

MR. MORGAN (British Road Federation) said the point that America devoted more resources to roads than we did was worth thinking about. The expenditure there per head of population was twice the level of ours. The biggest share in the national budgets of both countries went to defence, but in America the burden of defence was almost double ours per head.

It was pertinent to recall that in America the intention was that the highways programme under the Federal Highway Act would buy in the various toll highways before the end of their period of service and incorporate those highways into the integrated highway system.

In asking Mr. Killick whether in his opinion there was a difference between the two countries in respect of the public attitude to the professional engineers in this case, Mr. Morgan said he had gained the impression that there was, and he would like to know whether it was thought this was a good or a bad thing. An American engineer had told him that he had a half-hour programme every week on the television network to say what his department was doing. One would like to see highway engineers, traffic engineers, highway departments, and so on, in this country given the opportunity to put the case to the public by the medium of television.

Mr. Killick replied that he was not qualified to talk of the status of the professional engineers in America, but he was encouraged by the support given by Mr. Morgan. The power was in the hands of the politicians and it was up to us above all to bring pressure to bear upon them so that this country was not permanently left behind.

Public Meetings

The President, Mr. Drake, said he believed that in America the engineers, highway authorities, and so on took their public more into their confidence with regard to highway schemes. He was told in Los Angeles and San Francisco that immediately they had a road project they called a public meeting to point out why the highway was required. When they were preparing two or three alternative lines they called another public meeting of the people affected in order to show them the proposals. There was no doubt that in American they had to "sell" their schemes to the public. There were so many jobs in regard to which we in this country could take the public into our

confidence quite easily, and many of us did so; but our trouble was that we were not told that the scheme was to go on.

MR. HAWKES (Grays, Thurrock) remarked that the politician had to give the word "Go"; but it was the public conscience which had to tell the politician when he had to move. Somehow Mr. Morgan's organisation, or some other, would have to get busy in bringing the road problem right home to the politicians. He asked how the machinery for land acquisition operated in America.

Acquisition of Land

The President said he did not know about the acquisition of land, but he had a booklet, issued by the Californian Highways Department, which explained to the public why the motorways were required, the compensation which the people would get for their land and when the land would be required.

The highway authorities there had plenty of trouble in getting the land they wanted, but they did get it in the end, largely, he believed, by taking the public into their confidence.

MR. KEEPS (assistant chief engineer (motorways), Ministry of Transport) said he understood that the procedure, at least in California, was very similar to our own; it was something like our own system of compulsory purchase. But public opinion had to be prepared for it. The engineers there had emphasised what a tremendous amount of work they had to do to interest the public and to explain to them what was happening and to work up their enthusiasm for it. They had said it was quite common for a period of eight years to elapse from the initiation of a scheme to the time when construction began.

[During their 14-day visit to America, the Pavings Development Group party were accompanied by our own representative, whose reports on the tour appeared in our issues of May 19, May 26 and June 2.—Editor.]

NO CASE YET FOR MOTORWAY LIGHTING

Speaking at the annual luncheon of the Association of Public Lighting Engineers in Folkestone last week, Mr. J. F. A. Baker, chief engineer at the Ministry of Transport, said that the rapid increase of vehicles on Britain's roads called for a reappraisal of traffic and street lighting needs.

"The present policy is not to provide lighting on rural motorways or, under general conditions, at junctions, except the terminal roundabouts," he stated. "So far, there is not evidence from a year's experience of the M.1 to justify a change of policy."

If lighting should ever be needed on the motorways it would have to be quite different from conventional street lighting.

L.M.B.A. EDUCATION CONFERENCE

The eleventh annual conference on education in the building industry organised by the London Master Builders Association will this year be held in Ironmongers Hall, on Monday, November 7.

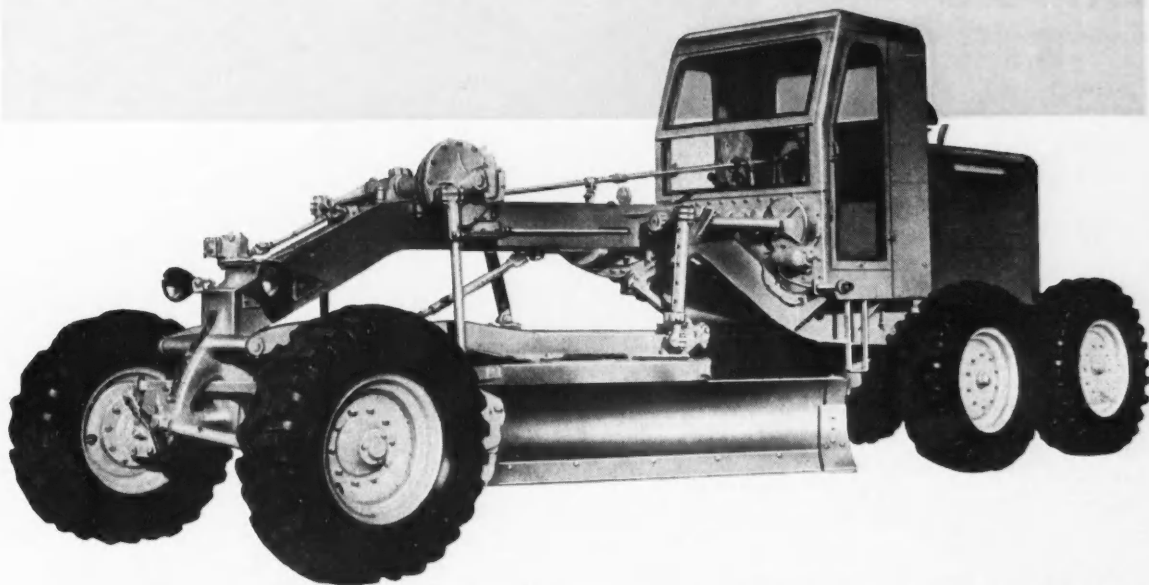
The discussions will be under two main headings "A New Approach to Apprenticeship" and "Graduate and Other Advanced Training." The chairman of the conference will be Mr. E. J. Cook, president of the L.M.B.A.

Following a three-day public inquiry, the Minister of Housing and Local Government has granted permission for the erection of schools and houses for the employees at Gatwick Airport on a 60-acre site at Horley, Surrey.

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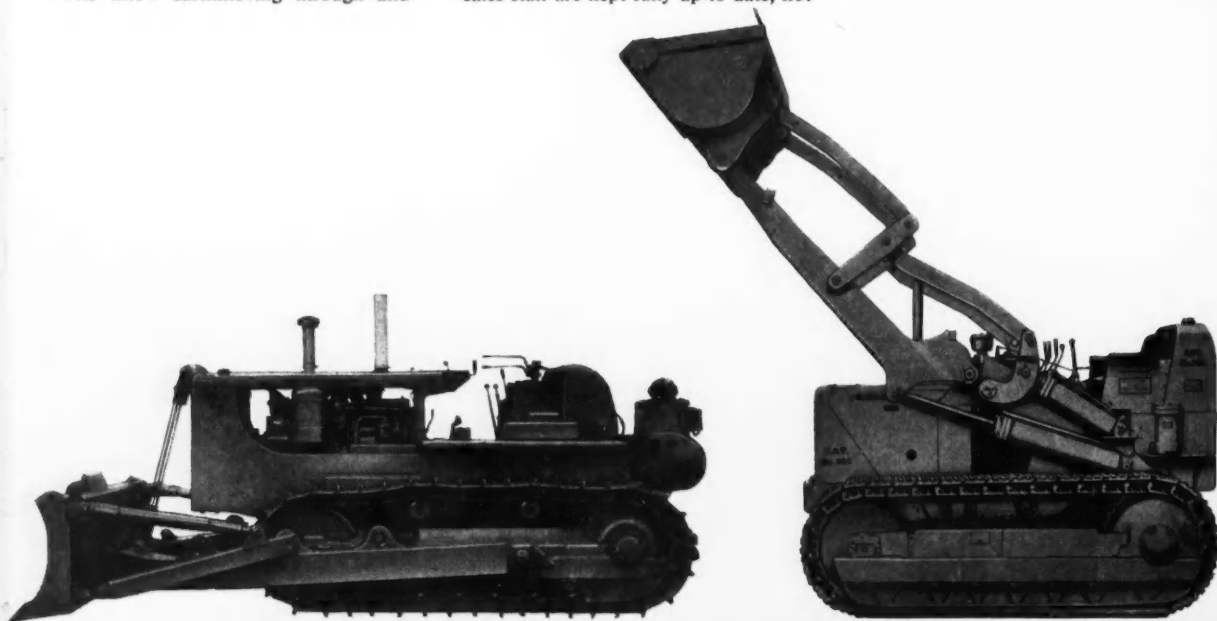
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Each salesman of Bowmaker (Plant) Limited is an extension of the vast experience and resources of Caterpillar Tractor Co. Bowmaker ensure, by means of continuous training, that the sales staff are kept fully up-to-date, not

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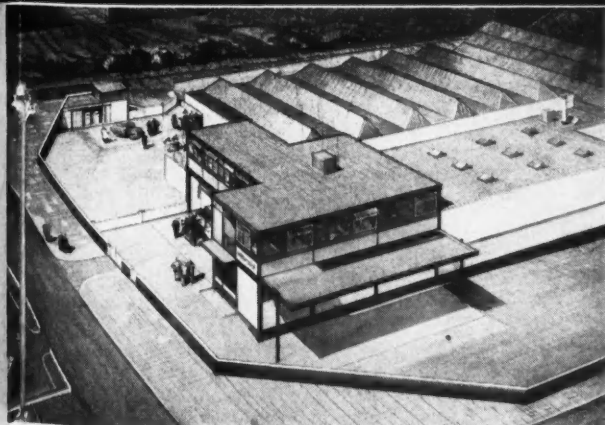
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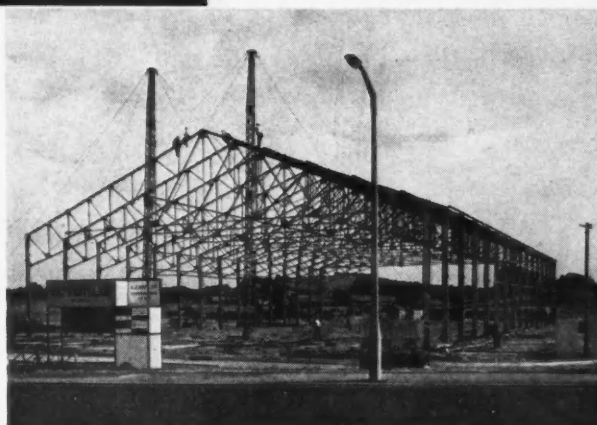
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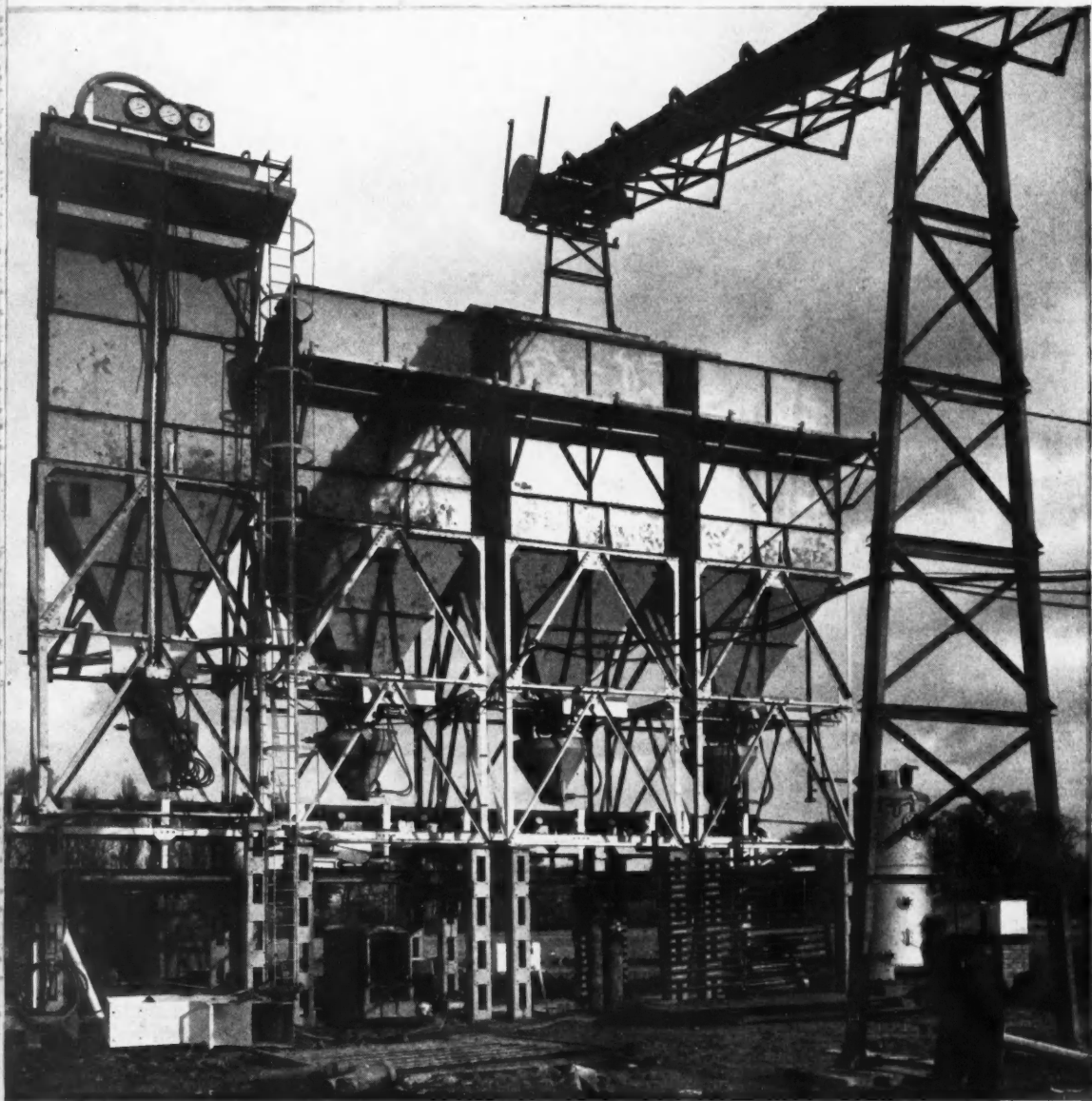
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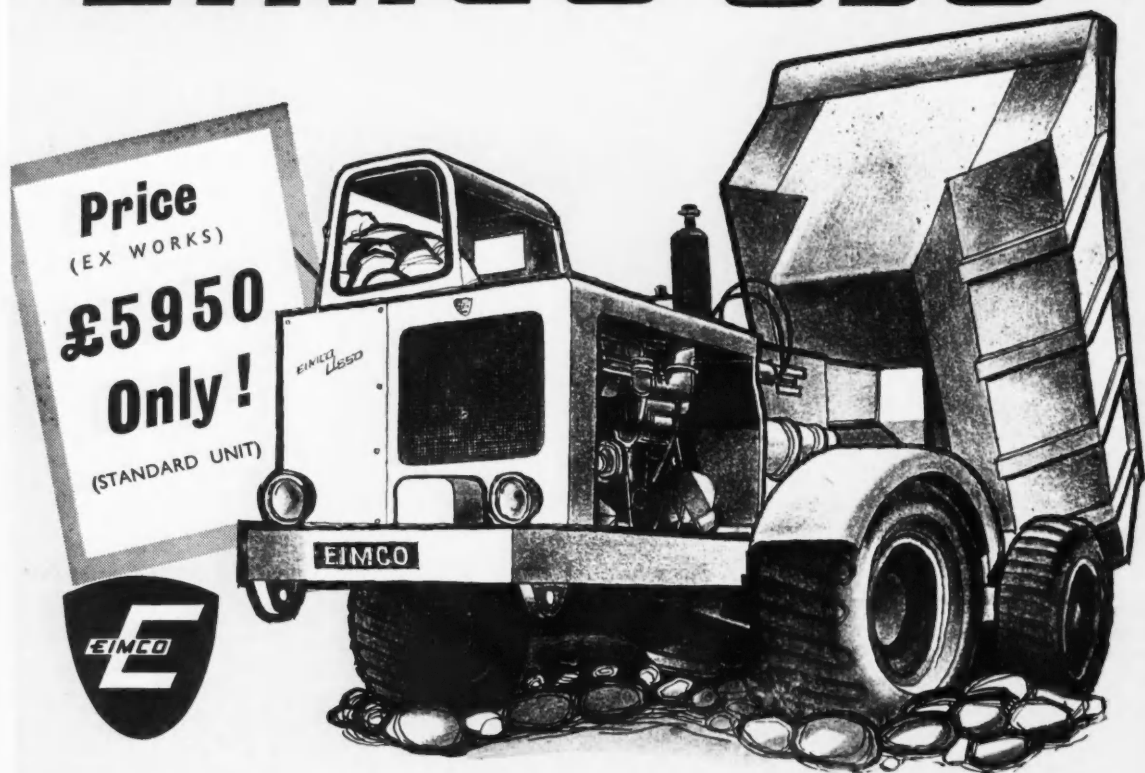
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MODERNISATION OF WINDSOR'S WATER SUPPLY SYSTEM

New Booster Plant and Service Reservoir

UNTIL recently, the water supply system of the Royal Borough of New Windsor has served a population of 32,000 over an area of 9 sq. miles by means of reciprocating pumps delivering from wells at Tangier Island direct into a closed system of distribution mains. There has been no service reservoir, no pressure relief valve nor any other safety valve on the mains system, the only storage other than the domestic tanks being a float controlled suction tank of nominal capacity from which a supply has been pumped automatically to a 20,000-gallon elevated tank serving one isolated high level zone.

Difficulties in maintaining supplies were foreseen before the last war when demand began to outstrip the safe yields of the wells and further difficulties were experienced in operating the scheme; these arising mainly from the excessive draw down of the wells at Tangier Island resulting from the very high rates of abstraction necessary to meet the peak demand for only a few hours each day.

There was also the danger and worries of continuous 24-hour day plant operation and the increasing difficulties of maintaining adequate yet not excessive pressures in all parts of the supply area.

Problems Overcome

All these problems will now be overcome with the completion of the council's modernisation scheme. This has provided a booster station at the western end of the distribution system and a service reservoir fed by the booster station. In addition, a small pumping station at Dedworth, built pre-war when a trial borehole was sunk there, has been retained, but as the water from the borehole is pumped directly into supply a pressure contact tank has been provided to improve the efficacy of the chlorination, and connected to the delivery main.

With the introduction of these changes,

pumping at Tangier Island will normally be continuous but at a constant rate about equal to the average daily consumption. At night the water surplus to requirements will be boosted up to the service reservoir and during the day any deficiency in supply from source will be made good by a back flow from the reservoir.

The consumption of water in the district is rising and it is anticipated that the present peak rate of demand of 100,000 g.p.h. may, in the foreseeable future, reach 156,000 g.p.h. The present average demand over a 24-hour period is approaching 60,000 g.p.h. and is expected to rise to 70,000 g.p.h. in 1980. The minimum rate of demand is, at present, 17,000 g.p.h. The maximum desirable abstraction rate from Tangier Island wells has been found by experience to be about 80,000 g.p.h. but this may be supplemented at the rate of 18,000 g.p.h. from the subsidiary source at Dedworth.

Booster Station and Plant

The new pumping plant consists of four horizontal electric motor-driven pumpsets. Of these four sets, two draw from a 5,000-gallon suction tank and the remaining two are true boosters drawing direct from the distribution mains.

Each of the two tank pumps is capable of discharging at a rate of 25,000 g.p.h. against a head of approximately 160ft.; and each of the two main pumps is capable of discharging at a rate of 20,000 g.p.h. against a head of approximately 80ft. All four pumps will be of the standard horizontal-spindle split-casing design directly coupled to three-phase a.c. motors.

The pumping main connecting the booster station to the reservoir is 18in. diameter and the existing trunk distribution main has been extended in 15in. diameter, all pipes being of spun-iron.

Owing to the very corrosive nature of the soil in this locality, cathodic protection has been applied to the whole length of the main, magnesium anodes being placed throughout at spacings as close

as 25ft. Access chambers have been provided to facilitate regular testing of the installation and the replacement of anodes as and where necessary.

Service Reservoir

Construction of the service reservoir was described in *The Contract Journal*, March 17, 1960. It has been sited on fairly level ground on St. Leonards Hill, at an elevation of about 255ft. O.D. The foundations have been taken to a depth of 12ft. so the reservoir is about half below ground, the T.W.L. being 261.50ft. O.D. Sufficient ground has been purchased to permit duplication at a later date, if found necessary to meet increasing consumption.

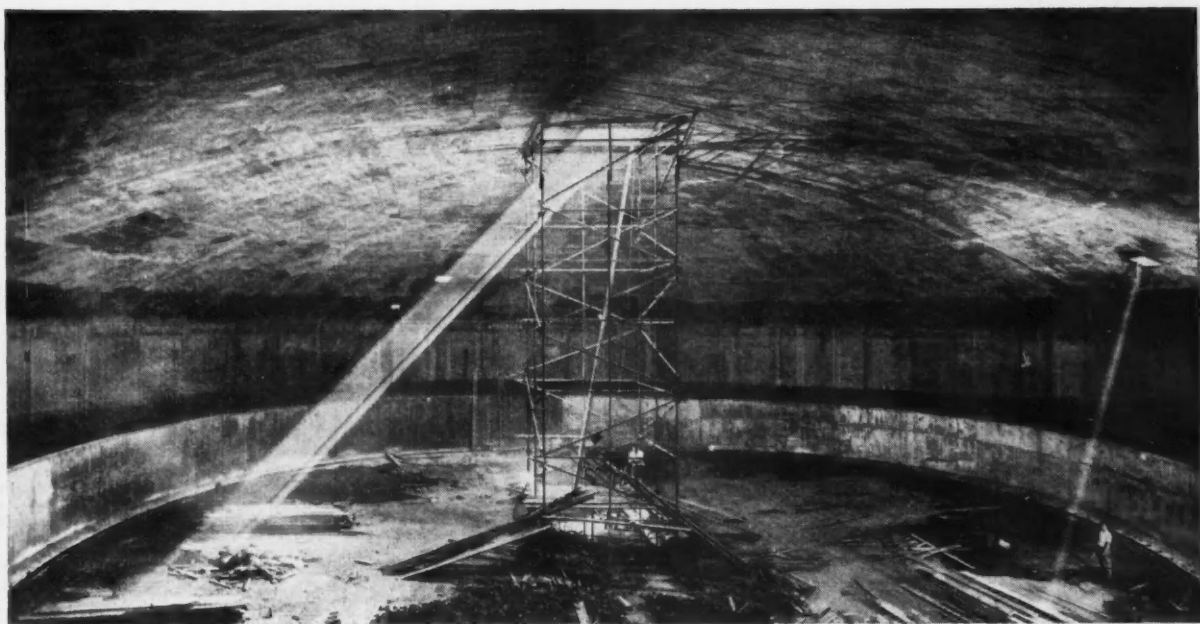
Preliminary boreholes revealed that the ground consists of firm stiff London Clay throughout. Ground water was found at a depth of about 22ft.-28ft. High concentrations of sulphates were found in the clay, and have made it necessary to use sulphate-resisting cement in all concrete exposed to the ground.

The reservoir, which is of 3,000,000-gallon capacity, is circular in plan, with an internal diameter of 160ft. The depth of water is 24ft. A concentric internal division wall, 10ft. high, having a diameter of 120ft. will retain a portion of the normal storage and enable supplies to be maintained during inspection and maintenance.

The structure is of prestressed, precast concrete. It has a domed roof which, to meet planning requirements, will be covered with 12in. of gravel and soil. The floor, which is fully underdrained, is a 6in. thick, reinforced concrete membrane. It is independent of the foundations of both the internal wall and the main wall, and is provided with water bars at the junction with these members.

The main wall of the reservoir is 10in. thick and is supported on an independent ring foundation of reinforced concrete. This ring foundation, which cannot be easily underdrained, is protected from sulphate attack by means of a trough of

(Concluded on page 1446)



Internal view of reservoir, showing inner wall

STILL MORE BUILDING ACCIDENTS IN 1959

Serious Problem Faces Demolition Firms

THE number of accidents in building and civil engineering, reveals the recently published 1959 annual report of the Chief Inspector of Factories, continued to increase steadily last year, as they have been doing for the last decade. Although there were fewer fatalities than in the previous year, the number of fatal accidents in both building and civil engineering have fluctuated considerably since 1950, and have not decreased as in other industries.

Accidents on both these types of work are analysed in the report in considerably more detail than hitherto. Work at building operations has been placed in 15 different categories for the purpose of analysis, according to the nature of the building involved, and to whether the work is classified as construction, demolition or maintenance. There were 15,410 accidents reported from building operations, 169 of them fatal, compared with 15,017 accidents and 207 fatalities in 1958.

Engineering Construction

Works of engineering construction produced 2,875 reported accidents compared with 2,329 in 1958. Again, the number of fatal accidents was lower, being 48 compared with 51. On building operations falls accounted for 35 per cent. of all accidents and 66 per cent. of the fatalities. Of the 112 fatalities arising from this cause, 24 were from ladders, 16 through fragile roofing material, and eight from structure being demolished. Lifting machinery accidents constituted an important hazard on construction work. On building operations a total of 433 accidents involved lifting apparatus including hoists, and 14 of these were fatal. On works of engineering construction there were 229 lifting appliance accidents of which seven were fatal.

The type of building work which produced the greatest number of accidents, states the report, was the construction of industrial buildings (4,304 accidents); in fact, almost two fifths of all building acci-

dents occurred in the industrial sector of the industry (these amounted to 5,914 accidents) and of these 90 were fatal, i.e., 53 per cent. of all the building fatalities. Work on dwelling houses produced a total of 3,419 accidents but less than 10 per cent. of the fatal accidents occurred in this sector.

Demolition and Maintenance

While the total number of accidents on building operations increased by 393 (2.6 per cent.) over the previous year, the report continues, accidents on new construction work were fewer than in 1958. The increase in the total number of accidents was thus due to an increase in the accidents on maintenance work and on demolition work. Furthermore, the figures show that not only have accidents on maintenance and demolition work steadily increased in number over the years but that these accidents are more likely than other kinds of accident to be fatal. About 1.5 per cent. of maintenance accidents and 4 per cent. of demolition accidents are fatal, as compared with 0.8 per cent. of accidents on new construction work and 0.4 per cent. of all accidents reported under the Factories Acts. Within the field of building operations there is, therefore, a particularly serious problem to be faced by firms doing demolition or maintenance work.

Among the new problems created by developments in building and civil engineering, the report deals with repair and maintenance work which will be required on the outside of multi-storey buildings. This work, it states, will be subject to the Building Regulations, and the problems raised in devising safe, cheap and simple means of access are considerable.

So far little attention has been paid to methods of providing access and clearly this will have to be done at the design stage if the cost of such provision is not to be out of all proportion to the cost of the work which has to be carried out. If suspended scaffolds or cradles are used there will be many hazards such as the effect of the wind, fouling of part of the

structure, prevention of swaying away from the building, rope failure, etc.

Where the height of the building is much greater than 100ft., power operated hoisting and traversing is essential and so far there seem to have been two main lines of approach to the problem. In one the winch gear is mounted on the roof with a low voltage control panel on the scaffold platform and in the other the winch gear is mounted on and controlled from the platform itself, the hoist ropes being secured to comparatively simple anchorages on the roof. Both methods are adaptations of those which have been used on tall buildings in North America and on the Continent of Europe.

Crane Collision

Another hazard connected with multi-storey buildings to which the report draws attention is the risk of collision between the jibs of tower cranes.

The increase in size of modern multi-storey buildings and the large quantities of materials which are used in them have resulted in the use of two or more cranes on the same site in close proximity to each other. There is then a risk of collision between the jibs of the cranes when slewing.

The crane driver cannot watch continually the position of the jib head, or the rope, as his primary attention must be directed to the load which his crane is carrying which may be some 200ft. to 300ft. away; at times the load may be hidden by parts of the building. In the dark or in misty weather the jib, and certainly the rope, may be out of sight. Some collisions between the jibs of such cranes have occurred, luckily without serious results so far, but the risk is sufficiently high to make several firms investigate methods of preventing the collisions. These vary from a simple sound signal in the driver's cab which operates when the jib of each crane slews into the area of overlap to more complicated ones where the slewing circle of each crane is restricted by electrical cut-outs if one of the cranes has its jib in the area of overlap. One basic safety precaution where the cranes have horizontal jibs is to keep the jibs at levels which allow one to pass over the other. Although there would remain the danger of fouling the crane ropes, direct collision between the jibs—a far worse hazard—would be avoided.

STANDARD FORM OF BEAM FOR PRESTRESSED BRIDGES

WITH the aim of producing economies in the design and construction of concrete bridges, the Prestressed Concrete Development Group, with the co-operation of the Ministry of Transport, have prepared a design for a standard form of precast, prestressed concrete beam.

The Ministry have circularised local authorities and bridge designers recommending use of the beam and providing them with tables and specimen designs, and already some 45 manufacturers throughout the country have undertaken to manufacture the beams to order.

Because most bridges in this country are of comparatively short span or can more economically be divided into a series of short spans the designs produced are for spans between 25ft. and 55ft. However, similar designs for greater spans are being considered.

At a conference in London last week, the Development Group pointed out that the standardised method of construction did not mean that bridges need lose their individuality as there was ample scope for varying architectural treatment at the edges of the deck as well as in the piers and abutments. Mr. A. J. Harris, vice-chairman of the Group, said that this was

not a new development but a rationalisation of existing practices. There was nothing restrictive about the idea, and while manufacturers were ready to make the standard beam, it could equally well be produced by the contractor responsible for the construction of the bridge.

Two Types of Beam

Within the range of spans from 25ft. to 55ft., two types of beam are recommended. Both types employ the same top and bottom flange shapes and web thickness, with different web depths. For spans between 25ft. and 35ft., a smaller section is used, and for spans between 35ft. and 55ft., a larger section is used with varying top flange thicknesses. Hence, it is possible to standardise the side shutters for the entire range of spans with provision for two web depths, the varying top flange depths being obtained by screeding to different levels inside the standard shutters.

All the beams are designed to withstand the load of the in-situ concrete and construction traffic and to act monolithically with the in-situ concrete to carry live loads. A minimum thickness of 3in. of concrete is placed over the beams: the precise thickness is determined to meet the design requirements.

The chief items of standardisation are as follows:

1. The width of the beams is 19½in. so providing three beams for each 5ft. of width assuming a ½in. joint between units.
2. The thickness of the web of the beam is 4in.
3. The variation in depth is provided wholly in the top flange for spans between 35ft. and 55ft.
4. Only the web depth is decreased to cover the range of spans from 25ft. to 35ft., there being provision for variation in the top flange.
5. The shape of the bottom flange is constant with a 2in. deep fillet with the web; this ensures that the holes for the transverse reinforcement occur only within the depth of the fillet and may be inclined to the longitudinal axis of the beam if necessary to meet the requirements of skew bridges.
6. Holes will be provided to accommodate transverse reinforcement equivalent to 0.50in.²/ft. length; these holes are of 2in. diameter at 24in. centres with their centres 6½in. from the soffit of the beam. It is recommended that the use of holes of greater diameter or at closer spacing should be avoided. The reinforcement may consist of a single bar, or smaller diameter bars of equivalent total area spaced peripherally.

DIESEL MAINTENANCE DEPOT OPENED AT STRATFORD

Further Stage in Eastern Region Modernisation

ON the new Eastern Region winter timetable, 61 per cent. of all passenger services will be operated by diesel and electric trains, and only 39 per cent. by steam trains. The "dieselisation" plan for East Anglia is making rapid progress, and to keep pace with it a new diesel locomotive maintenance depot has been built at Stratford, London, E.16. It is the first in the Region with centralised workshops, stores, offices and staff amenities.

Situated on part of the site formerly occupied by the 70-year-old "Jubilee" shed, the new depot has provision for 16 main line diesel locomotives under cover. As with Finsbury Park depot, opened in May this year, maintenance work can be carried out at two levels: from raised platforms when servicing diesel engines and on a depressed floor when dealing with bogies and brake gear.

The new double-ended 300ft. long shed has eight tracks; four on either side of a two-storey workshop, office and staff block, which is placed across the centre. A precast reinforced concrete frame was used with an 80ft. span, and the roof is covered in double skin asbestos-cement sheeting, with fibreglass insulation.

Inside the depot, the tracks are carried on 5in. diameter tubular steel supports at 5ft. centres, in order to give freedom of access from the lower floor to the pit. Working platforms, on precast concrete trestles, are 4ft. 6in. above rail level; the lower floor being 2ft. 6in. below rail level.

The office and workshop block is framed with reinforced concrete; in situ on the ground and lower ground floor and precast on the first storey. The infill panels throughout are of brick and glass, the emphasis on materials being placed on hard-wearing properties requiring the minimum of maintenance.

Equipment

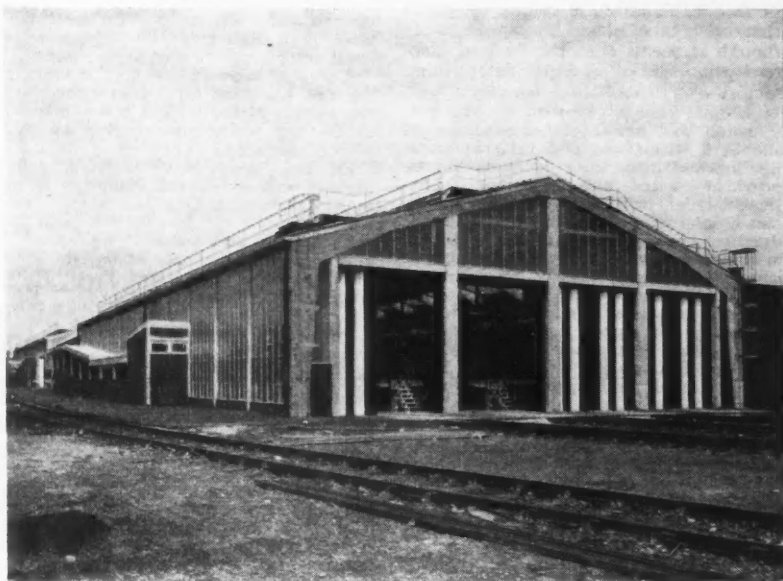
The centralised workshop is provided with a 1-ton transporter hand-operated crane, filter cleaning, injector testing, and lubricating oil testing equipment, steel benches, rough cleaning tanks, degreasing

plant, paraffin washing tanks, a small pedestal drill and a tool grinder. There are also 15-Amp earth proved socket outlets for power tools, 50-Volt socket outlets for hand lamps and compressed air points.

The centre portion of the shed, in addition to containing the workshops, also

and hot plate ovens are provided, while the washrooms are equipped with electric hand driers.

The depot also has 1-ton transporter hand-operated cranes on the two outside roads, and provision has also been made in the design to allow the installation of cranes on all roads. Power-operated



General view of the shed

contains the stores, locker rooms, messrooms, lavatories and washrooms. Suitable socket outlets are provided in order that the floor cleaning machines can be used. The stores racks are equipped with tungsten filament rack lights so that components can be easily identified. In the messrooms, electric cookers, water boilers

folding sliding doors are also provided at either end of the shed.

Heating

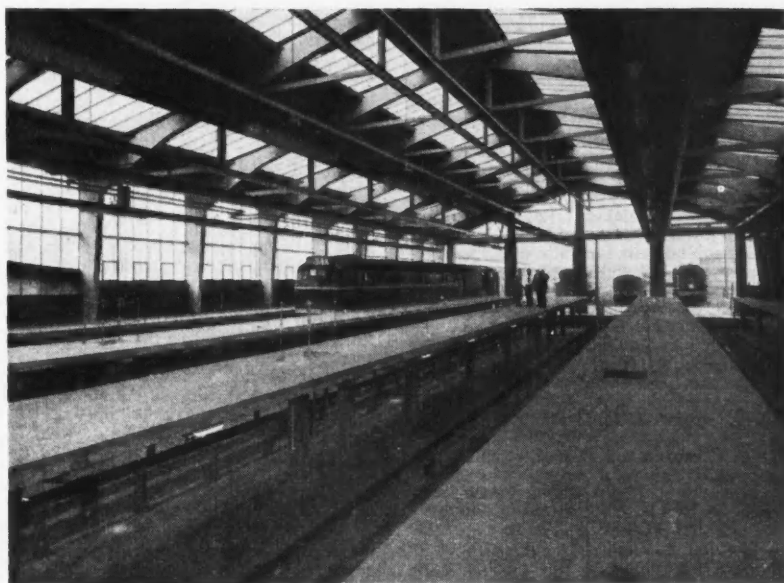
A feature of the detached boiler house is that it not only heats the new depot, but also the nearby multiple unit shed, opened in 1957.

High temperature high-pressure hot water is used for heating the shed by means of "Brightrad" panels suspended over the platforms, with secondary strips fixed immediately beneath the platforms to provide heat to the working areas underneath.

The two boilers are of the wet-back, double-pass type with low water content and fully flooded. Hot water is drawn from the boiler and force-circulated through the heating system by means of centrifugal pumps, which are duplicated to ensure against stoppage should any fail. A novel feature of this particular installation is that while high temperature water is fed to the "Brightrad" strip panel suspended above the platforms, a much reduced temperature is essential for similar strip fitted beneath the platforms.

In addition to the strip panels placed over and under the platforms, a number of standard single-sided 8ft. x 4ft. panels are suspended adjacent to the main entrances in the shed. These comprise sheet metal plates to which are affixed grid or sinuous pipe coils with the upper surfaces insulated against top heat loss. As with the strip panels, the heat is transmitted from the hot water passing through the pipes to the metal plates and thence radiated downwards. These are intended to provide a curtain of radiated heat to counter the effect of opening the doors when locomotives enter or leave the shed.

(Concluded on page 1444)



Interior of the shed, showing the two level working stages

PROGRESSIVE CHANGES IN STREET LIGHTING

"Higher Levels Will Continue in Future"

AS in other fields of artificial lighting the modern trend of using higher levels of lighting will continue in the future for street lighting, particularly in special purpose roads," said T. M. Lappin, F.I.E.S., and H. Robertson, Grad.I.E.E., of Dundee Corporation, in a Paper presented at the recent annual conference of the Association of Public Lighting Engineers. "The ultimate ceiling to which rise may take place is unpredictable though it seems that the cost of electricity may be a principal determining factor."

"Despite changes in road design, construction and surfaces the principles of silhouette vision are still valid in street lighting and many existing roads can be provided with safe and acceptable standards of lighting within the recommendations of the present B.S. Code of Practice. Nevertheless, the use of higher mounting heights with higher light output lamps as well as the 200-W linear sodium lamp could be adopted and some economic saving in capital and running costs effected by using high output lamps at spacings greater than at present allowed by the existing B.S. Code of Practice."

"Much publicity has been given to the choice of equipment for street lighting schemes recently. While it is proper that due regard should be given to aesthetics this aspect should not be over-emphasised and technical and economic considerations should in most cases take precedence."

In the course of their Paper, which was entitled "Progressive Changes in Public Lighting," the authors said:

The accepted principle of street lighting in this country of visibility by silhouette vision has been somewhat vitiated by the increasing tendency towards the employment of darker road surfaces. Road makers have not yet devised a surface material which will have the non-skid qualities required for the safe moving of traffic and have reflective characteristics favourable to street lighting. The texture as well as the colour determines the reflection properties of the road surfaces and the brightness produced. The two extremities to be avoided are those materials giving either a very rough or very smooth finished road surface. Resulting from wear, every road surface undergoes changes in its reflective properties, and with all surfaces there is probably a gradual change throughout life.

In an endeavour to overcome these now common darker types of surface the tendency is to use more powerful light sources.

In our own area in the reinstatement of disused tram routes and in other roads, asphalt surfaces with pre-coated chippings of 1in. or 1½in. granite are being provided. When the dark pre-coating has worn off, usually within a week or so, the road surface appears quite light, especially when white granite chippings predominate, when seen by an observer standing at ground level. Good results have been obtained in wet and dry conditions with this type of surface with lamps of as low output as 85-W sodium, mounted at 25ft. above the carriageway and spaced at distances of the order of 120ft. As wearing of the surface proceeds, polished areas appear in the main traffic lane, reducing the uniformity of brightness and the effectiveness of the lighting. Resurfacing of existing asphalt roads with gravel chippings is common practice and provided the chippings are small and lightly coloured, the effectiveness of the installation is not impaired initially. Larger gravel chippings are not as satisfactory as smaller ones but the choice of size of chippings depends upon the nature

and construction of the road. Best results are obtained on this surface when the chippings are small, the resurfacing newly completed and the spacing of the lamps at distances of the order of 120ft. After a time, depending upon the amount of traffic using the road, the chippings are either thrown towards the kerbs by the traffic or pressed into the surface. When this happens long, highly polished, dark patches stretch along the road on the main traffic lanes and this has a very bad effect on the uniformity of road surface brightness. The effect gradually becomes worse until resurfacing is carried out again.

Concrete surfaces are not common in Dundee, but from experience gained with this surface by the authors, it would appear to give the best overall effect of all types of road surface.

Of the "new" road surfaces, rolled asphalt with pre-coated chippings is the most common in Dundee. Good street lighting results can be obtained with this surface even with lamps of light outputs at the lower end of the scale, laid down in Code of Practice 1004 Part 1, with spacing of the order of 120ft.

New Facilities Available

During the years they have been available the efficiency of mercury, sodium and fluorescent lamps has been increasing steadily. The lighting engineer today is in the fortunate position that more powerful and more efficient light sources, with longer life and higher lumen maintenance, are available and he must of necessity adapt his approach to the design of street lighting installations without prejudice. Apart from the range of lamps available, for many years now the latest light sources introduced to street lighting are the 200-W linear sodium lamp, the 280-W sodium integral, and colour corrected mercury lamps in the 250-W and 400-W sizes. The most notable advance in this direction is undoubtedly the introduction of the sodium lamp linear giving the remarkable efficiency of 100 lumens per watt. This higher efficiency lamp should result in lower street lighting maintenance costs per mile.

Indeed, public lighting engineers are in pretty much the same position today as they were about 30 years ago when the electric discharge lamp was first introduced. Now, as then, we have the choice of applying the lamp to effect savings in running cost by maintaining existing levels of lighting or to provide higher levels of lighting regardless of the effect on running cost. The latter appears to be the policy being adopted generally.

The number of lighting points is a major factor in determining the cost of an installation and any system which makes a saving in the number of points required should result in a marked saving in cost.

The capital cost per mile of an installation of 140-W sodium lamps at 120ft. spacing is £3,453. Such an installation gives 5,780 lumens per 100ft. of road. The annual maintenance cost is £640.

For approximately the same annual cost per mile of lighting with 200-W sodium linear lamps the spacing would be 155ft., the capital cost £3,194 and the level of lighting 8,900 lumens per 100ft. of road.

It is obvious, therefore, that if the 200-W sodium lamp is used at spacing greater than 155ft. and produces similar or better visibility than 140-W lamps in staggered formation and otherwise to code standards, the case for its use on economic grounds cannot be disputed. In city streets, of course, wider spacing than 120ft. could give rise to difficulties in siting.

Recent changes in installation design have been to higher mounting heights at

code spacing or greater with changes in the arrangement or siting of the lamps.

In this connection it should be noted that the present code allows a maximum mounting height of 30ft.

Two factors appear to have influenced the tendency towards greater mounting heights, first, the availability of more powerful light sources and, second, the opinion held in some quarters that with modern non-skid road surfaces a greater height is necessary to produce the overall carriageway brightness for silhouette vision.

In city roads generally, greater heights than 30ft. could be out of character with the buildings and surroundings and could create new problems in planning and siting, particularly with reference to road junctions, and the use of greater mounting heights may best be applied in certain types of road, e.g., special purpose roads out-with built-up areas.

The suggestion has been made and applied of an intermediate mounting height between the recommended heights of 15ft. and 25ft. of the Code of Practice. Heights of 18ft.-20ft. have been used. It may be that such an arrangement provides satisfactory installations for minor traffic routes in cities and in roads of narrow width. But if a satisfactory installation is produced at this mounting height with lamps of light output of the order of 4,400 lumens—a value associated with existing group A installations—a more effective installation will be obtained at 25ft. At the lower height spacing is much more critical and savings effected must be relatively small.

In the view of the authors a third mounting height of 35ft. has come to stay and to minimise the number of sizes of lamp column in use apart from other considerations they do not support the belief that an intermediate mounting height is necessary.

Recent Trends

In the last two years a number of new installations, experimental or exploratory in character, have been erected in various parts of the country. In all cases the emphasis has been towards greater mounting heights and greater light output. Lantern designs have improved and new designs are appearing. A notable feature has been the adoption of post top mounting units for use with fluorescent tubes and 400-W MBF/U colour corrected mercury lamps.

The use of colour corrected mercury lamps in built-up areas where formerly 5ft. fluorescent tubular lamps had been or would have been used and to replace high wattage G.L.S. lamps is increasing. Successful conversion from 750-W and 1,000-W G.L.S. lamps to 250-W and 400-W MBF/U lamps in existing lanterns has been carried out recently in Dundee with a substantial saving in electricity costs and time spent on lamp renewals. New installations on minor traffic routes in staggered formation at 25ft. mounting height and 120ft. spacing using 250-W MBF/U lamps have given acceptable installations. Levels of lighting are, with the 250-W, 4,700 lumens per 100ft., and with the 400-W, 7,540 lumens per 100ft.

Work on similar lines is being carried out in the Metropolitan Borough of Fulham. During 1959 the section of the West Cromwell Road extension scheme, which runs through Fulham and is a dual carriageway road was completed with lanterns with MBF/U 400-W lamps and the result has been most satisfactory.

This year the relighting of Munster Road, which is part class I and part class

III, was carried out using 35-250-W and 8-400-W MBF/U lamps. This road is partly residential, partly shopping with a street market and carries an appreciable amount of traffic.

Arising out of the abandonment of the trolley bus routes in Fulham Palace Road, Fulham Borough Council is considering the relighting of this road. It is proposed that 250-W and 400-W MBF/U lamps shall be installed at a mounting height of 25ft. to produce a standard of 11,700 lumens per 100 linear feet of road, which is rather more than the recommended figure of "at least 10,000 lumens" mentioned in the Practice Notes in the Interim Report of the Consultative Committee on the Lighting of Traffic Routes within the London Conurbation in July, 1959.

Birmingham Inner Ring Road

A recent and notable application of colour corrected mercury lamps has been made on the Birmingham Inner Ring Road.

For the Inner Ring Road installation the level of lighting was specified to be not less than 30,000 lumens per 100 linear feet per carriageway. The desired standard of lighting could only be achieved with a lantern having a very high light output. A new type of post top unit 4ft. 6in. in diameter, housing three 400-W colour corrected mercury lamps was designed. The ring road will eventually comprise 3½ miles of dual carriageway round the centre of the city. The overall width will be 110ft. with carriageways each 38ft. wide and two footpaths each 15ft. wide. A 4ft. strip or central reservation will separate the carriageways, which will provide three lanes for moving traffic and a kerbside lane for unloading goods and passengers.

The post top lanterns are mounted 30ft. high on slender steel poles erected on the outer kerbs only opposite each other at intervals of 100ft. It is claimed that this arrangement, leaving the central reservation clear, gives an air of spaciousness to the thoroughfare.

Linear Sodium Lamp

Probably the greatest factor in producing new trends in street lighting, however, has been the introduction of the 200-W linear sodium lamp and the 280-W sodium integral lamp. With the advent of these sources the tendency in street lighting practice today in this country, particularly on roads with considerable and fast-moving traffic, has been towards greater mounting heights of the order of 30ft. to 35ft.

This in turn has caused lighting engineers to look again at design of certain installations and in certain types of road, notably dual carriageway roads, a number of experimental installations have been erected.

There seems to be four main ways of applying the new sodium lamps with the higher mounting heights to lighting dual carriageways.

(1) Conventional method as set out in Code of Practice part 1, i.e., treating each carriageway as a separate road. With a spacing of 180ft. the number of points per mile is approximately 30. The number of poles can be reduced by using poles with double arm brackets on the central reservation. There seems no reason for restricting the use of double arm brackets with central reservation to "about 10ft. or 12ft." as laid down in Code of Practice. It is not clear if this is done for technical or aesthetic reasons.

(2) Single side lighting at 180ft. between lamps sited at or about the near kerb of each carriageway in opposite formation. The same number of lamps is required as in (1). It has been suggested that the brightness on the lamp side of the carriageway tends to draw traffic to that side. If this is so then this has obvious advantages.

(3) Single sided lighting with 180ft. between lamps sited at or about the near

kerb of each carriageway, but with lamps arranged in staggered formation across two carriageways as against opposite formation as in (2). Probably a more uniform road surface brightness than in (2), but this is largely determined by width of central reservation.

(4) Single sided lighting with 180ft. between lamps arranged in a single line of poles with double arm brackets down central reservation. Day-time appearance probably most acceptable with night-time probably worst of all four. All these arrangements give nominally 30 lamps per carriageway mile.

The best results will be achieved, in the authors' opinion, with the first arrangement and if the central reservation is not greater than, say, 20ft., the day-time appearance will be improved by using double arm brackets on central reservation. The cabling costs will be most expensive, generally, with this arrangement. Apart from the first method the factor of prime importance seems to be one of day-time appearance, the night-time effect in each case being sacrificed to achieve this in varying degree. As it is the main function of the road lighting scheme to provide adequate light and uniform road surface brightness for the motorist, these factors should take precedence over aesthetics.

A number of installations using the 200-W linear and 280-W integral sodium lamp have now been erected in various parts of the country and future practice may be moulded on the experience gained with them.

Mr. Granville Berry, city engineer of Coventry, was an early experimenter with the 200-W linear sodium lamp and he now has installations on the Coventry By-pass and the Ring Road.

Coventry By-pass is a dual carriageway road having carriageways 22ft. wide separated by a central reservation 18ft. wide. One section is lit with lanterns using a single 200-W sodium lamp in each lantern and giving 14,140 lumens per 100 linear feet of road over two carriageways. Another section uses lanterns each with two 200-W linear lamps and giving 21,800 lumens per 100 linear feet over two carriageways.

The mounting height is 35ft. and the lanterns are staggered across both carriageways at 100ft. spacing measured along the centre line or 200ft. between lamps on the same carriageway.

A notable installation in Scotland is that provided by Lanark County Council in May last year on the Glasgow to Edinburgh Road. This is a dual carriageway road of overall width 100ft. The carriageways are 22ft. wide and the central reservation 28ft. wide.

The lighting is by lanterns specially designed for the 280-W integral jacket sodium lamp on steel poles at a mounting height of 35ft. The poles are erected behind the near kerb of each carriageway giving an opposite arrangement of lamps at a spacing of 170ft. The lumens per 100ft. linear of road are 8,512. The installation cost was £8,000 per dual carriageway mile.

In all of these installations the arrangement of lamps over two carriageways is contrary to the accepted principle for building up a background brightness over the whole width of the carriageway and tends to give a higher brightness area on the lamp side. In the staggered arrangement the bright streak is on the driver's near side while with the centre line arrangement it is on the driver's off side. The reactions of drivers to these conditions are apparent. The bright streak is accentuated by the polish given to the road surface by the traffic itself. With the staggered arrangement there is a tendency for the central reservation to be dark. This is a critical part of the road with fast moving and overtaking traffic.

A slight upward angle of tilt is being given to lanterns in some installations and this has the advantage of throwing more light across the roadway. It does not

overcome the difficulties inherent in making a full brightness pattern on the roadway.

Motorways

The authors do not presume to discuss the merits of motorways as a contribution to the country's traffic problem nor the case for or against their lighting during the hours of darkness. They are highways specifically designed for use by motor vehicles travelling at high speeds and the problems associated with their lighting may be quite different from those of the lighting of traffic routes in built-up areas. Mr. Granville Berry has expressed the view that much of the economic justification for our motorway system would depend on the around-the-clock use that industry would make of it and that it was essential that new motorways should be made as safe by night as by day.

The problem is a national one and not one for the local authorities and must be dealt with as such.

Mr. J. M. Waldram has stated, however, that traffic route lighting is probably not the best solution to the problem and for motorways the lighting must be very efficient, free from glare and from the repetitive effects which can be monotonous and soporific.

It would appear at first sight that the lighting of motorways would be an ideal application of the higher power and more efficient light sources available today.

Much investigation and experiment will be required to find the desirable level of lighting, the method of providing it and whether a standard form or pattern of lighting should be devised for all motorways. In these experiments no doubt account will be taken of the possibilities of conventional systems, of cut-off light distribution and uni-directional lighting. As the lighting of motorways is likely to be more expensive than in more normal traffic routes the last with its lower running cost merits the fullest consideration. Control of glare would be an important factor.

Flyovers and Underpasses

The lighting of flyovers and underpasses has been carried out fairly successfully by conventional lighting systems and the problems are not so different perhaps from the lighting of other roads as in the case of motorways. They do, however, introduce some of the features associated with the lighting of tunnels and bridges and glare is an element which must be controlled.

Unlike motorways each flyover and underpass may call for individual treatment and regard must be had to the type and standard of lighting on the approach and leaving sides of both flyover and underpass. The problems may be quite different at different sites.

The lighting of these traffic engineering features requires the co-operation of all parties concerned from the initial stages and efforts should be directed to having the lighting considered as an integral part of the road plan from the outset of a project. Indeed there is probably need for some national body being set up to co-ordinate the interests.

Choice of Equipment

There is a growing interest by the public today in the general appearance presented by street lighting equipment.

Early attempts at the design of modern lamp columns were somewhat misdirected but in recent years there has been more co-operation between the designer of the lantern, the column and the user. It is interesting to record that a Council of Industrial Design award for 1960 has been given for two post top street lighting lanterns on specially designed columns.

The basic principles of the Code of Practice when applied result in an installation giving safe night vision. The classification of roads for lighting, however, is unrelated to surroundings and while fast traffic routes may look well with modern

street lighting equipment, the equipment can be out of harmony in villages and smaller towns. In trunk road lighting schemes financial aid to the local authorities is conditional on the design of the columns being acceptable to the Royal Fine Art Commission.

The Royal Fine Art Commission was appointed as long ago as 1924. It is an active and co-operative body and some regard should be paid to their point of view that some modern street lighting installations, particularly those with high mounted lamps, are out of keeping with surroundings of historical interest and buildings of classical period architecture.

The Royal Fine Art Commission is only too happy to advise local authorities on the selection of columns for particular sites and their relationship to specific problems and the co-operation of municipal authorities with the Commission on such problems could be profitable to all concerned. An example of the value of such co-operation is the main traffic route between London and Oxford which passes through the picturesque village of West Wycombe which is of considerable interest. The road narrows as it passes through the village and it was thought that high mounting height was not appropriate. It was necessary, however, that the lighting should be adequate and safe. The lighting authority is the High Wycombe Borough Council and the Ministry of Transport had agreed to make a contribution of 50 per cent. towards the cost of installation and annual maintenance of street lighting. The National Trust, who own the village, were not prepared to approve the class A lighting installed on the trunk road within the Borough east of West Wycombe. After consultations between various parties, including the Royal Fine Art Commission, a scheme was developed comprising 200-W G.L.S. lamps in decorative lanterns suitable for wall and post top mounting. The average spacing of the lamps was 90ft. at a height of 13ft. 6in. A few of the lamps in the built-up section of the village were wall mounted. Lumens per 100ft. of roadway were 1,700. The adjacent group A lighting consists of 400-W mercury lanterns at 25ft. mounting height with an average spacing of 145ft., giving a level of lighting of over 6,000 lumens per 100ft. The resultant lighting goes some way to satisfy artistic feeling and practical requirement.

Central Areas

Restriction of traffic both parked and moving would minimise or remove the need to go beyond the Code of Practice in level of lighting in most provincial city centres and central shopping areas and would permit legitimate traffic to move more freely and nearer to built-up area speed.

It would be true to say, however, that congestion of traffic in most city centres and central shopping areas continues to become greater and special treatment is called for as the application of the principle of silhouette vision diminishes. In congested areas of this nature the recent tendency has been towards increased mounting height, closer spacing and greater light output per fitting.

The fluorescent tubular lamp should continue to find an application in such schemes. It is difficult, however, to achieve high lumen output with this lamp, approximately 10,000 lumens being the maximum with four 80-W warm white lamps. Lamps greater in number to step up the output require larger lanterns which in turn become less pleasing in appearance and more difficult to site and maintain especially in the horizontal position.

Probably as a consequence of this post top lanterns on poles of old and new design with fluorescent tubes have come into favour used at closer spacing, sheer efficiency being sacrificed for pleasing appearance.

A more recent development has been the use of the colour corrected mercury lamps in multi-lamp lanterns at mounting heights of the order of 35ft.

The use of multi-lamp lanterns has the advantage that full lighting can be provided during peak periods of traffic and the standard of lighting can be reduced to the appropriate level for normal requirements.

Many cities are faced with redevelopment plans for their central areas and here there is scope for standards of lighting beyond the present code standards. Civic pride or prestige demand this and there is ample opportunity for the application of ideas away from the orthodox. Indeed many city redevelopments do not lend themselves to conventional lighting methods particularly those incorporating pedestrian ways and two-storey shopping features.

In such circumstances technicalities and lighting efficiency have to be sacrificed to pleasing appearance.

Outwith the actual development area higher levels of lighting than hitherto should be provided and local authorities should not restrict the funds made available for such schemes.

Group B Roads

It has already been noted that by far the greater part of our roads fall into the category of Group B of the Code of Practice and that a great deal of money must yet be spent before these are all raised to the Code level of lighting.

Both the Ministry of Transport Report and the Code of Practice recognise the wide diversity of roads embraced in the term "Other Roads" and guidance on their lighting is given therefore only on broad lines.

The total lumen output of the lanterns specified or recommended in both documents is within the range of 600-2,500 lumens per 100ft. linear or road.

The creation of large housing estates as self-contained communities creates problems in the lighting of other roads. In our own area most of the Group B lighting provided in recent times has been in new housing developments and falls within the category B2 of Code of Practice 1004 Part 2.

Carriageway widths vary from 16ft. to 30ft. and footpaths from 6ft. to 10ft., grass verges being provided between the kerb and the footpath in some of the wider roads. In the opinion of the authors, on roads of greater carriageway width than 22ft. satisfactory lighting for pedestrians and motorists on Group B roads is not provided by lamps at a mounting height of 15ft.

Within the last decade asphalt has replaced concrete for road surfaces in housing areas and with the change it soon became apparent that on roads with carriageway widths of 22ft. and greater, poor effects were obtained with lamps in staggered formation mounted at a height of 15ft. above the carriageway. The road brightness was far from uniform. The brightness patches formed were of insufficient width to stretch across the carriageway and a complete lateral crossbanding effect was not even produced.

In later schemes the lighting of roads of this type was greatly improved by using 60-W and 85-W sodium lamps staggered at 25ft. mounting height with a preferred spacing of 120ft. A complete brightness background is produced on the carriageway, there is more light thrown towards the paths, steps and doors of the houses and the installations are altogether more acceptable to all users of the roads. Admittedly the arrangement is more expensive in initial and maintenance costs but this is justified by the results achieved.

Roads with carriageway widths of 22ft. are also being lit in this manner if they are to be used as bus routes within the housing estate. Information on this aspect is obtained from the Transport Manager during the planning stage of the housing development.

On minor roads within housing estates carriageway widths vary from 16ft. to 22ft. and footpaths are generally 6ft. Roads of this type in the past were lit with 100-W G.L.S. lamps in open refractor lanterns

with symmetrical distribution at 15ft. mounting height. Reasonable results have been obtained with spacing of the order of 110ft., closer spacing being provided where necessary on bends or at road junctions. Here again the installations were more effective on concrete than on asphalt carriageways. House fronts receive just sufficient light and lumens per 100ft. linear at 110ft. spacing is about 850.

In more recent times in roads of this category 45-W sodium lamps are being used in housing estates on the outer fringe of the city and 80-W MBF/U lamps in schemes nearer the central area. Although similar levels of lighting could be obtained with 150-W G.L.S. lamps the annual maintenance cost is in favour of the discharge lamps and this will become more important if electricity should rise in price.

The trend nowadays is for higher levels of lighting for Group B roads as for Group A roads and likewise the lamps to enable it are available. Nevertheless for narrow roads it is possible to provide reasonable standards of lighting with lamps of low lumen output in a well-planned installation and if the lower level of lumens for 100ft. of road is raised many existing installations would automatically fall outwith code standards. In the opinion of the authors the upper level of 2,500 lumens of the code should be raised, some regard being given to the width of road in determining the value. The creation of large housing estates as self-contained communities introduces other problems and here as in congested and shopping areas there is scope for the application of amenity lighting where formerly utilitarian lighting had to suffice.

FACTORY TO BE CONSTRUCTED IN 27 WEEKS

Work is now in progress by John Laing and Son, Ltd., on a £260,000 project at the Kingswood, Bristol, shoe factory of G. B. Britton and Sons, Ltd.

The development is to be completed in only 27 weeks and incorporates a part single, part two-storey production block of over 75,000 sq. ft. floor area, a two-storey canteen building and single-storey boiler house, together with various subsidiary works, including new access roads, car parking area and drainage installations. Nearly 5,000 sq. ft. of temporary accommodation has been erected to avoid interference with output at the existing factory during the construction period.

Among a number of new features is the system of steel space frame construction, which enables rapid completion of the roof so that building operations can be carried out below, unhampered by bad weather. Special draught proof roof lights, in moulded fibre glass of 6ft. clear span and 18ft. lengths, are an innovation in the roof of the production block. Elevations consist largely of an adaptation of curtain walling with emphasis on simplicity and lightness of treatment.

The architects for the new buildings are W. H. Watkins, Gray and Partners. The consulting engineers are Clarke, Nicholls and Marcel and the quantity surveyors, Faithful and Gould.

CONCRETE COURSES

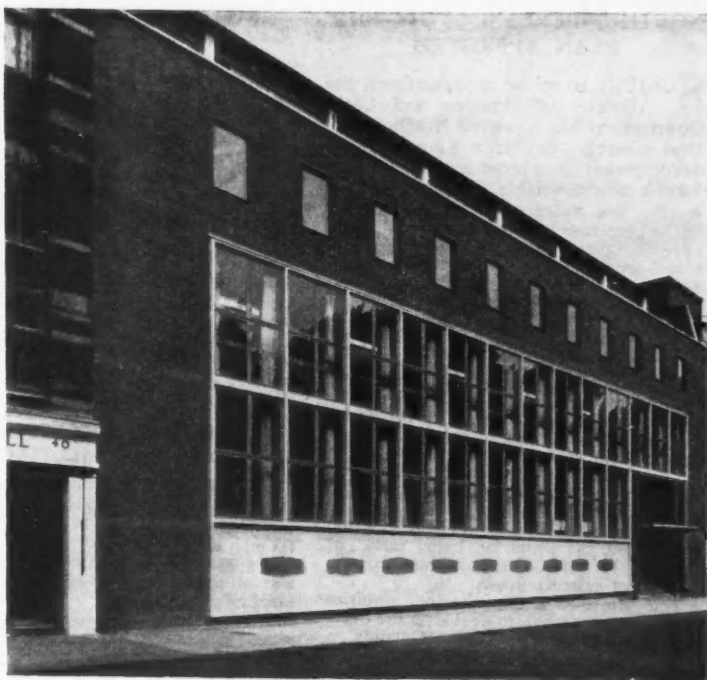
The Cement and Concrete Association has prepared a list of some 60 colleges which have intimated their intention of offering one or more of the City and Guilds courses in concrete work.

Copies of the list are available from the Association at 52 Grosvenor Gardens, London, S.W.1.

The Minister of Housing and Local Government has appointed Sir Frederick Armer to hold a public inquiry, starting on December 1, into proposals for relief roads at Oxford.

HOLBORN LIBRARY BUILDING

Use of Reinforced Concrete and Steel Framework



Front elevation of the Holborn central library

A MODERN library of four storeys and a lower ground floor providing a total floor area of 39,500 sq. ft. has recently been completed at Theobald's Road, London, W.C.1, for the Holborn Borough Council. It took 22 months to build at a cost of about £250,000.

Included in the building are a lending library on the ground floor, housing 45,000 books; a reference library with seating for 120 and access to 40,000 books; a children's library and children's theatre; a lecture hall seating 250 persons; individual research rooms; a periodicals room; and a gramophone record library.

The library is sited on an area cleared after bomb damage, and is flanked on either side by walls of existing buildings. At the back of the building is a short frontage to John's Mews, where the Council own other property, including an assembly hall, and the new library had to be designed

to provide constant access to this hall from Theobald's Road.

The structure is mainly of reinforced concrete. The front wall, which is non-load bearing, is cantilevered away from the first line of internal structural columns to give an unusual ceiling profile. To conform with planning regulations, the height of the library has been limited to tone with adjacent buildings, and for this reason the rear elevation is in steps.

There are two lifts, with mahogany surrounds, and a staircase, lined with Formica, serving all floors, as well as an emergency staircase, and two hoists for books. Partitioning throughout is of the demountable type to meet rapidly changing demands made on the library systems. The floor space is left clear of all fixed engineering services and heating pipes, heating being by electrical conduits set in the floor screeds and wired to form elements which give off thermostatically controlled heat throughout the building.

The large entrance hall on the ground floor leads into the main lending library, measuring 90ft. in length and 50ft. in width. The amount of shelf space for books on the ground floor is repeated in a gallery above, which houses books on music, literature and the arts. The floor of this room is of teak blocks, while linoleum floor tiles are used throughout the rest of the building.

At the foot of the stairs to the lower ground floor is a space which can be used for small exhibitions. Leading from this is the entrance to the children's library, which incorporates a reference section and children's magazines. A periodicals room adjoins the children's library, but with a separate entrance.

Archives rooms and the lending library stack room, containing some 25,000 volumes, make up the remainder of the accommodation on this floor. The archives rooms incorporate dust, humidity and temperature control.

On the first floor are the reference library services. The main reference library is 120ft. long and 50ft. wide. At one end it overlooks Gray's Inn Gardens through double-glazed floor to ceiling windows. In the centre of the room are 52 individual study tables, and there are nine small lobbies for research. At a slightly lower level on this floor is the commercial library with 3,000 volumes on open shelves.

Above the second floor, reinforced concrete framing gives way to steel portal framing, to provide an increased span, and on this floor is a hall seating up to 250 people for lectures and cinema shows. For smaller meetings a more intimate atmosphere can be created by means of a mechanical steel screen with folding wings, acoustically treated on one side. French windows in the north and south walls of the hall lead on to terraces which may be used by the public.

Other amenities on this floor include a private room for the lecturer, a tea-bar, and exhibition space for works of art by local artists, which is also used as a lounge area for the lecture hall.

The building was designed by the Holborn borough architect, Mr. S. A. G. Cook. The consulting engineer was W. V. Zinn; and the quantity surveyor, O. E. Parratt.

Holland & Hannen and Cubitts (Great Britain), Ltd., were the main contractors.



The entrance to the nine study carrels for individual research

NORTHUMBERLAND TOWNSHIP PLAN APPROVED

SUBJECT to minor modifications, the Minister of Housing and Local Government has approved Northumberland County Council's plan for the development of a large area of land to form a new township at North Killingworth, five miles north of Newcastle.

The proposals submitted to the Ministry were for a comprehensive development—a self-contained community of factories, dwellings, shopping centre, schools and churches—serving a population of about 17,000.

Lancashire New Town

It was also announced last week that the Minister of Housing will shortly be consulting the local authorities concerned about a site for a new town at Skelmersdale, in Lancashire.

The Government have been reviewing the problem of Merseyside overspill, and have decided to put forward the proposal to construct the new town, which would supplement the provision being made, or planned, for Merseyside overspill by expansion of existing towns.

The Minister is also having inquiries made to see whether, to deal with the overspill problem of the West Midlands, a suitable site for a new town under the 1946 Act can be found. A possibility at present being investigated is the area of Dawley in Shropshire.

J. I. CASE PLANS FOR EXPANSION

J. I. Case Co., Ltd., the British subsidiary of J. I. Case Company, U.S.A., have acquired the Grangefield Works at Stanningley, Yorkshire. The property has extensive manufacturing buildings and a total area of 6½ acres.

Announcing this, Mr. W. Muir Robb, managing director, says that arrangements have been completed for the manufacture in Great Britain of a range of Case construction equipment which is intended not only for the home market, but also for export to Europe, Scandinavia, Middle East, India and Africa.

Provision is being made at the Grangefield Works for modern service facilities, and complete stocks of repair parts. It is expected to have this phase functioning before the end of the year.

A further announcement will be made in due course regarding production commencement dates of British manufactured equipment. Meanwhile, a full range of imported equipment from the United States factories will continue to be available in this country.

Building Research Station Digest I (Second Series)—Research and its Users—has been published by H.M. Stationery Office, price 4d.

(Concluded from page 1439)

High temperature high-pressure water is used as the heating medium for the various sections of the workshop and amenities block. Strip panels are fitted in the workshop and stores, pipe coils are used for the locker and cleaning rooms, and convectors are provided in the offices.

All the rooms on the first floor receive heat from a plenum system. There is a 150-gallon capacity calorifier which is used to provide hot water to the toilets and messrooms. During the winter period, high temperature hot water is provided as the heating medium, but during the summer a heavy duty electric immersion heater is brought into use. The complete heating system is fully automatic.

Situated in the boiler house is a steam generator which is heated by high-pressure hot water and automatically produced

£350,000 BATHGATE ROAD CONTRACT

JOHAN LAING AND SON, LTD., have been awarded a £350,000 contract for roadworks at the new British Motor Corporation factory at Bathgate, West Lothian. Their tender was one of 12 received by the County Council.

Involved in the contract is the conversion of about a mile of the Edinburgh-Glasgow trunk road (A.8) to dual carriage-way and the construction of a new subsidiary road with a flyover junction and a system of slip-roads and underpasses. Work is about to start and is expected to be substantially complete by next April. The consulting engineers are Sir Alexander Gibb and Partners.

C.P.A. GOLFING SOCIETY'S AUTUMN MEETING

A most successful meeting was held at the Berkshire Golf Club on September 13, under the captaincy of Mr. Pat Barrett (Lumley (Plant), Ltd.). Thirty-six members and guests took part and both the morning and afternoon rounds were played under ideal conditions.

The morning round against bogey was played on the Red Course and was the occasion of the first competition by the members for the President's Cup presented for annual award by Mr. Harold Spragg, C.B.E., the president of the Contractors' Plant Association and the first president of the Society.

Two members, Mr. W. W. Atkinson (Caffin and Co., Ltd.) and Mr. A. Miller (W. R. Ingram, Ltd.) both returned a score of one up and after adjudication on the result of the first nine holes the cup was awarded to Mr. Atkinson. Mr. K. Goodacre (Amalgamated Road Stone Corporation) was the winner of the general competition with a score of two up—the runner-up prize going to Mr. Miller.

The afternoon competition on the Blue Course was played as a greensome under Stableford Rules. Four pairs returned 32 points and after adjudication the winners were Mr. J. Walton (Lumley (Plant), Ltd.) and his partner, Mr. H. K. Watson (Ham River Grit Co., Ltd.), with Mr. S. R. Barnett (Tractors Hire (Chiswick), Ltd.) and his partner Mr. D. Benbow (British Quarries, Ltd.), the runners-up.

£3M. BALDERHEAD RESERVOIR PROJECT

Twenty-two firms have applied to the Tees Valley and Cleveland Water Board, Middlesbrough, to tender for the Balderhead reservoir and river abstraction scheme.

The scheme will cost about £3m., and the consulting engineers are Edward Sandeman, Kennard and Partners, 171 Victoria Street, Westminster, London, S.W.1.

steam at 25 p.s.i.g. for steam heating the rail tankers prior to off-loading fuel for heating purposes.

The fuel oil is stored in two large tanks each of 9,000 gallons capacity. These are fitted with a dual system of outflow whereby either high-pressure hot water or electric heating can be used. Contents gauges and high oil level alarms are also fitted. Electrically operated fire valves are installed, so that in the event of a fire in the boiler house, valves in pipelines from the storage tanks to the burners would automatically close and cut off the oil supply.

Contractors

The main contractors for the new depot were Higgs and Hill, Ltd., and the precast frames were manufactured by Concrete Development Co., Ltd.

Other contractors included: W. and C.

Late Construction News

GLOUCESTER DRAINAGE.—The tender of M. J. Gleeson (Contractors), Ltd., North Cheam, Surrey, at £423,771, has been accepted by Gloucester City Council for the construction of a sewage treatment works at Netheridge Farm, Hempsted. Work will start within the next few weeks. John Taylor and Sons, Artillery House, Artillery Row, London, S.W.1, are the consulting engineers.

BURNLEY DEVELOPMENT.—New premises costing about £90,000 are to be erected at the corner of Boot Street and Croft Street, Burnley, for Massey's (Burnley) Brewery, Ltd. Quantities are now being prepared prior to the invitation of tenders. The architect is H. Hubbard Ford, 35 South Audley Street, London, W.1, and the quantity surveyors Cecil F. Baker and Partners, 20 Lowndes Street, London, S.W.1.

ESTON HOUSING.—Eston (Yorks.) U.D.C. have accepted the tender of Stephen Coates, Ltd., North Ormesby, Middlesbrough, for the erection of 204 houses at Church Lane Estate.

MIDDIX SCHOOL TENDERS.—Selected contractors are now being invited to tender for the erection of the School of the Douay Martyrs at Ickenham, Middx., for the Trustees of the Roman Catholic Archdiocese of Westminster. Plans are by David Stokes and Partners, 5 Cochrane Street, London, N.W.8. The quantity surveyors are Davis, Belfield and Everest, 9 Ashley Place, London, S.W.1.

CONTRACT FOR HUMUS TANKS.—A contract worth £149,034 has been awarded to C. Bryant and Son, Ltd., Small Heath, Birmingham, 10, by Birmingham Tame and Rea District Drainage Board for the construction of four reinforced concrete humus tanks and ancillary works at Minworth New Works. Seven tenders were received, ranging up to £277,010.

L.C.C. DWELLINGS.—The L.C.C. are inviting tenders, due in early next month, for the erection of four multi-storey blocks of flats and maisonnettes at Peckham Rye No. 3 site. Plans have been prepared under the direction of the County Architect, and the quantity surveyors are C. E. Ball and Partners, 36 Fitzroy Square, London, S.W.1.

11-STORY RESIDENTIAL HALL.—Tenders are now being invited for the erection of an 11-storey hall of residence for male students at Sheffield University. The site is in Endcliffe Vale Road, Sheffield. The consultants for the scheme are: Hadfield, Cawkwell and Davidson, architects, 17 Broomgrove Road, Sheffield, 10; Bryden and Woodford, quantity surveyors, 33 Catherine Place, London, S.W.1; and Hoare, Lea and Partners, mechanical consultants, 52 Green Street, London, W.1.

CONTRACT FOR GAMMON.—Gammon (Malaya) 1959, Ltd., members of the Gammon Group, have been awarded a contract by the Housing Trust in Singapore for about 6,000 piles, each up to 70ft. long. The contract is worth about £350,000.

French, Ltd., demolition; The Cementation Co., Ltd., piling; Drake and Gorham (Contractors), Ltd., electrical; Brightside Heating and Engineering Co., Ltd., heating.

The messrooms, stores, boiler house and ancillary buildings were the responsibility of the Regional Architect, Mr. H. H. Powell. C. H. Dobbie and Partners acted as consulting engineers, being responsible for the design of the shed and other works, as well as for site supervision.

The permanent way layout was designed in the office of Mr. A. K. Terris, chief civil engineer, Eastern Region, King's Cross, under whose overall direction the scheme was developed and executed. The chief mechanical and electrical engineer, British Railways, Eastern Region, Mr. T. C. B. Miller, M.B.E., was responsible for the design and installation of the lighting, heating and all services, as well as equipment for the new depot.

STRUCTURAL ASPECTS OF FIRES IN BUILDINGS

Fire Resistance of Walls*

TWO items on the research programme of the Fire Research Station relate to walls and their fire-resistance as defined in B.S. 476: (1) walls of dense and lightweight concrete blocks and (2) walls of perforated clay bricks.

The investigation under (1) is being carried out in co-operation with the British Cast Concrete Federation with a view to providing more information on the fire-resistance of this form of construction. Notional periods of fire-resistance for block walls of different types and thicknesses are contained in the Fourth Schedule of the Ministry of Housing and Local Government Model Bylaws, but these were based, in the absence of British data, almost entirely on the results of a few American tests, and it seemed desirable to extend and also to check this information in view of the differences in materials used in the two countries.

At present no distinction is made in the Bylaw Schedule between load-bearing and non-loadbearing walls, and it is probable that some economy would result if more were known about their performance under the conditions of use. Consequently in the investigation similar walls have been tested when restrained and when load-bearing. The results so far obtained are given in the Table. Comparison of these results with existing data shows that present requirements tend to be conservative except for thin hollow blocks of Class 2 aggregate.

"The use of structural steel in building" there are some important changes which require attention because of their possible effect on accepted fire-resistance ratings for concrete encased steel columns. The standard permits the concrete encasement to be taken into account, under certain conditions, in calculating the load that a column may carry. Since in a fire the strength of the concrete would be significantly reduced before the steel reached its critical temperature, the result would be to increase progressively the stress in the steel above that contemplated in the design and this may well affect the fire-resistance.

The results of this investigation should be interesting, since a saving in the amount of steel which would be required for a given multi-storey building, when design is in accordance with B.S. 449 for encased columns, would have to be balanced against the increased thickness of concrete necessary to achieve the specified standard of fire protection, bearing in mind that an encasement less than 2in. thick is not reckoned as load-bearing.

A programme of tests is now in hand, in co-operation with the Building Research Station, to investigate the influence of the concrete on fire-resistance for three types of aggregate (one type of natural and two types of artificial aggregate), three thicknesses of encasement, and under axial and eccentric loading. Constant factors are concrete strength, size of steel section and slenderness ratio. Columns will also

with the present requirements for these constructions.

The test is appropriate to all materials forming a roof covering and is therefore used to grade plastic roof lights. At present there are severe restrictions on the use of combustible roof lights, which have been imposed chiefly on account of lack of means of assessing their performance when exposed to external fire. In general these materials are permitted only in isolated parts of a non-combustible roof and their total area is limited. Tests on proprietary types of plastic roof light indicate that it is possible for these products to achieve the highest designation. It should be noted, however, that for roof lights to attain a high classification in the test, flame-retardant additives are usually necessary, and it would consequently be desirable to obtain evidence of the durability of such treatments when exposed to the weather.

MINISTER APPROVES HIGH DENSITY DEVELOPMENT SCHEMES

Mr. Henry Brooke, Minister of Housing and Local Government, has given consent for high density development schemes—including high flats—at Henley-on-Thames and Wanstead. He regards these schemes as the kind of development which can help to meet the current demand for building land whilst giving variety to the urban scene.

The Minister's decisions are on an appeal by Townmaker, Ltd., against the refusal of Oxfordshire County Council to permit the building of houses, maisonnettes, studios, garages and a 25-storey tower block of flats on 6½ acres of land at Paradise Road, Henley-on-Thames; and on an application by Wanstead and Woodford Borough Council for planning permission to build 102 dwellings (including blocks of flats of eight and 11 storeys), 24 lock-up garages and parking space on land at Hall Road, Tilney Road and Eastern Avenue, Wanstead.

SHORT COURSES FOR ENGINEERS

The Department of Civil and Mechanical Engineering of The Polytechnic, London, W.1, are arranging a series of short courses for practising engineers to study the latest developments in design and industry.

Commencing at the end of this month the courses include: "Ultimate Load Design for Reinforced and Prestressed Concrete," by L. L. Jones, M.A., A.M.I.C.E.; "Contractors' Plant," by A. G. Stone, A.M.I.Mech.E., F.R.G.S.; "Public Health Engineering"; "Prestressed Concrete," by F. W. Gifford, B.Sc.(Eng.), Ph.D., D.I.C., M.I.Struct.E., A.M.I.C.E.; "Engineering Concretes," by D. A. Stewart, M.B.E., M.I.C.E., A.M.I.E.E., and J. A. Bickley; "An Introduction to the Linear Analysis of Shell Structures," by J. Munro, B.Sc., D.I.C., A.M.I.Struct.E.; "Highway Engineering"; and "Collapse Design of Steel Structures," by W. M. Jenkins, B.Sc., Ph.D.

The fee for each course is £1 1s. Times and synopses of the courses are available from The Polytechnic, 307-311 Regent Street, London, W.1.

MUNICIPALS' PRESIDENT

Mr. J. H. Melville Richards, borough engineer and surveyor of Harrow, has been nominated by the Council of the Institution of Municipal Engineers as President of the Institution for 1961-62.

Fire-resistance of Concrete Block Walls

Construction and materials	Thickness excluding plaster in.	Grade of fire-resistance h.	Notional period in Bylaw Schedule h.
Solid blocks, non-loadbearing			
Class 1 aggregate (foamed slag)			
without plaster	6	6	not given
with ½ in. plaster on each face	6	6	(4in. for 2 h.)
Class 2 aggregate (flint gravel)			
without plaster	4	2	1
with ½ in. plaster on each face	4	4	2
Solid blocks, load-bearing			
Class 2 aggregate (flint gravel)			
without plaster	4*	2	1
Hollow blocks, non-loadbearing			
Class 2 aggregate (flint gravel)			
(i) without plaster	6	4	not given
with ½ in. plaster on each face	6	6	not given (8½ in. for 1 h.)
(ii) without plaster	4	None	not given
with ½ in. plaster on each face	4	None	(3in. for ½ h.)

* One specimen wall of this construction was tested until it failed by heat transmission after exposure for 2 h. 50 min., but it failed to support re-application of the test load 48 h. later as required by B.S. 476. In the second test on a wall, heating was stopped at 2 h. and the wall passed the re-load test.

Under item (2) a programme of research has been started in co-operation with the Building Research Station to determine the fire-resistance of walls constructed of the perforated clay bricks which they have developed. Factors to be investigated are: (1) effect of type of brick (amount of solid material), (2) effect of type of clay, (3) effect of load or restraint, (4) effect of finishes. From the tests so far made it appears that one type of block can meet the statutory requirements for fire-resistance without the addition of special finishes when used to form load-bearing walls in multi-storey dwellings; others are suitable for two-storey houses.

Structural Steel Columns

In the revised edition of B.S. 449: 1953

*Extract from *Fire Research*, 1959. Report of the Fire Research Board, with the Report of the Director of Fire Research. Published for the D.S.I.R. by H.M.S.O. Price 5s.

be loaded to failure when hot after selected fire periods.

The British Standard specifying the tests to determine the behaviour of roofs under conditions of exposure to external fire, was issued last year. Reference to the development of this test has been made in *Fire Research* 1954 (page 19); *Fire Research* 1955 (page 30); *Fire Research* 1956 (page 18). The standard enables a designation or classification to be given to the specimens tested, based primarily on their capacity to prevent penetration of fire from the top to the under-side, and their tendency to spread flame over the upper surface.

A large number of common roof constructions have been tested and designated, and consideration is being given to the method of specifying the test as a performance standard for future building bylaw and regulation purposes, which would, as far as possible, be consistent

Men and Movements

MR. A. MARCHAM, B.Sc.(Hons.), M.I.C.E., M.I.Struct.E., has been appointed director and general manager by Concrete Development Co., Ltd. Mr. Marcham joined the Building Research Station in 1929, and since then has served with Trussed Concrete Steel Co., Ltd., working with its subsidiary Diagrid Structures, Ltd. He went to South Africa in 1938 as a specialist on Diagrid products, and became managing director of H.L.H. Concrete Engineers in that country in 1955. He was responsible for introducing prestressed concrete into South Africa, and also for the design and construction of many large bridges and structures there.



A. MARCHAM

Mr. J. Hall, plant sales manager of James F. Low and Co., Ltd., Dundee, has now taken over duties as manager of the contractors' plant department. He will be responsible for the affairs of the company relative to all Rob Roy equipment.

As members of the Redland Holdings group, Sharp, Jones and Co., Ltd., and Norcon Pipes, Ltd., have entered into a combined selling arrangement. The director responsible will be **Mr. S. V. Jones** with **Mr. E. W. Austin** as sales manager.

International Harvester Company of Great Britain have announced that **Mr. W. G. Moeller** has been appointed staff assistant (domestic) to the director of sales. His special sphere of operations will be liaison with the dealerships throughout the country. During his 29 years' association with the Australian affiliate company, Mr. Moeller has held many important positions connected mainly with dealer operation.



W. G. MOELLER

many important positions connected mainly with dealer operation.

India's oldest chartered civil engineer, **Sir Mokshagundam Visvesvaraya**, received an illuminated address from the president and council of the Institution of Civil Engineers last week on the reaching of his 100th year. The presentation was made in Bangalore by **Lt.-Gen. Sir Harold Williams**, representative member for India on the Institution's Council. The second oldest member on the Roll of the Institution of Civil Engineers at the present time, Sir Mokshagundam was elected an associate member in 1887 and a full member in 1904.

Dr. Richard V. Waterhouse has been appointed managing director of Acoustical Investigation and Research Organisation, Ltd., a member of the Hall-Thermotank group.

Mr. J. J. Vilven has been appointed Massey-Ferguson's industrial manager, marketing division, United Kingdom Operations. In 1955 Mr. Vilven joined Midwestern Industries, Wichita, Kansas, as regional sales manager and when this company was acquired by Massey-Ferguson, Inc., in 1957, he was appointed regional sales manager for the western half of the United States with the Massey-Ferguson industrial division, Wichita. In 1959 he became general sales manager.



J. J. VILVEN

John Laing and Son (Holdings), Ltd., have announced the appointment to the board of **Mr. W. B. Haughan** and **Mr. G. W. Greenhow**. Mr. Haughan is also president of John Laing and Son (Canada), Ltd., in Vancouver and Mr. Greenhow is an assistant managing director of John Laing and Son, Ltd. **Mr. E. U. Broadbent**, manager of the civil engineering division of John Laing and Son, Ltd., and **Mr. C. H. Craft**, manager of the London division, have been appointed to the board of the company.

Attending the Fourth International Symposium on the Chemistry of Cement in America next month will be **Mr. E. Burke**, director of research, A.P.C.M. Research Laboratories; **Mr. H. W. W. Pollitt**, a deputy director; and **Dr. G. Marshall**, chief chemist, G. and T. Earle, Ltd. The symposium will be attended by more than 300 chemists from all over the world.

The new plant recently installed provides super-chlorination followed, after 15 minutes' contact in the existing pressure filter shells, by de-chlorination with gaseous sulphur dioxide, aqueous solutions of both gases being pumped under pressure into the trunk delivery main. The plant for both purposes is provided in duplicate, electrically operated automatic change-over panels being incorporated to maintain continuity of treatment.

Normal dosing of chlorine is at 1.5 p.p.m. followed by de-chlorination to produce a residual of 0.1 p.p.m.: both the chlorine and sulphur dioxide doses are automatically proportioned by means of a differential converter to suit variations in the pump discharge rate. In addition, the sulphur dioxide dose is controlled by the chlorine residual controller so that the plant may be pre-set to produce a water with any desired chlorine residual.

The engineer to the proposed East Yorkshire Water Board will be **Mr. Harold Ackroyd**, who has been deputy engineer with the Midland and South East Cheshire Water Board for the last four years.

Mr. G. P. Robertson has been promoted assistant manager, sales department, for Caterpillar Tractor Co., Ltd. In his new capacity he will assist **Mr. E. W. Doubet**, sales manager, in the administration of all phases of sales activities of the company. Mr. Robertson has been associated with Caterpillar equipment since 1946, when he was appointed assistant sales manager for the Birtley Company, Newcastle. He was appointed London office manager for Birtley in 1952, retaining this position four years later when the factory at Birtley was purchased by Caterpillar to become their Newcastle plant. Mr. Robertson moved to Glasgow in 1958, as manager of the export sales division for British Caterpillar.



G. P. ROBERTSON

Mr. James W. Milne, deputy engineer and manager to the Mid-Northamptonshire Water Board for the last 10 years, has been appointed chief engineer to Southend Waterworks Company.

It has been announced that **Mr. T. Nancarrow**, A.M.I. Mech. E., G.I.E.E., has been appointed works manager of Armstrong Whitworth and Co. (Pneumatic Tools), Ltd. Mr. Nancarrow was formerly works manager for Steels Engineering Products, Ltd.



T. NANCARROW

Mr. W. E. Nicholls has retired from the board of Western Counties Brick Co., Ltd.

MUNICIPAL

Mr. James McInnes, assistant county surveyor of Denbighshire for four years, has been appointed county surveyor at Westmorland. He succeeds **Mr. D. Morris**, who retires next month.

(Concluded from page 1437)
high alumina cement concrete, some 5in. to 6in. thick.

Water Treatment

The decision to modernise the water undertaking in general has prompted the Council to provide a new plant for the effective sterilisation of the supply from the Tangier Island pumping station. From a very early date particular attention has been paid to the chlorination of water from this station. The need for special care arises partly from the vulnerability of the source and partly by reason of the direct delivery of water from the pumping plant into the distribution system for immediate consumption.

Chlorination plant was first installed in 1915, but that plant and its successor have been found difficult to control accurately over the wide range of pumping rates obtaining.

The new treatment plant has been designed and installed under the direction of the borough engineer, **Mr. G. S. Baker**. The remainder of the works have been designed and their construction supervised under the direction of **Sandford Fawcett and Partners**, consulting engineers, London.

The main contractors are: **Holst and Co., Ltd.**, service reservoir and main; **W. Varney, Ltd.**, booster station; **Gwynne Pumps, Ltd.**, machinery; **Wallace and Tiernan, Ltd.**, chlorination plant.

Sub-contractors include: **Biggs, Wall and Co., Ltd.**, main-laying; **Metal and Pipeline Endurance, Ltd.**, cathodic protection; **Brookhirst Igranite, Ltd.**, switchgear; **Electroflo Meters Co., Ltd.**, meters and recorders; **P.S.C. Equipment, Ltd.** and **McCalls Macalloy, Ltd.**, prestressing equipment; **The Stanton Ironworks Co., Ltd.** and **The Staveley Iron and Chemical Co., Ltd.**, spun-iron pipes.

COLLIERY WORKSHOP AND ANCILLARY BUILDINGS COMPLETED NEAR DURHAM

A NEW workshop and ancillary buildings have been erected at Tursdale Colliery, near Durham, for the National Coal Board (Durham Division).

The workshop block occupies an area measuring 300ft. by 280ft., and the walls are supported on a system of reinforced concrete beams. The floor is a reinforced concrete slab, generally 6in. thick and split into panels of 60ft. by 20ft., with

expansion joints placed in the slab where stanchions pass through the floor.

At various points, rail tracks enter the workshops, and here a 9in. reinforced concrete raft has been placed under the 6in. slab and isolated from the main slab by expansion joints. The heavy machinery has been placed on mass concrete foundations, and a number of reinforced concrete tanks, inspection pits, sumps and ducts were included.



Tursdale workshops

An administration block, 230ft. by 30ft., is sited at the front of the workshop block, and on the south side are the garages and paintshops, which are of similar construction to the workshops.

Boiler House

A boiler house, occupying an area of 39ft. by 53ft., and sub-station, 48ft. by 25ft., complete the new work. The floor is a reinforced concrete slab, 6in. thick, but thickened to 2ft. under the boilers. Reinforced concrete stools, approximately 7ft. deep, are used to carry the two boilers, and the boiler foundations are isolated by expansion joints from the main floor slab.

The boiler house is 22ft. high and a reinforced concrete frame construction is used. The frames have been designed with pin joints at their feet, because of the low bearing capacity of the ground at Tursdale, and it was desired that no moment should be carried down to the foundations. An underground coal bunker of reinforced concrete, with a capacity of 20 tons, feeds by means of a conveyor two reinforced concrete hoppers, each with a capacity of 7½ tons, which are suspended from the frames directly over the boilers which they feed. There is also a reinforced concrete platform cantilevered from the frame which carries a 1,000-gallon oil tank.

The roof of the boiler house is a 5in. reinforced concrete slab, carrying the pent house to the hoppers and roof lights. The foundations for the sub-station works are continuous with the floor slab and a 10in. reinforced concrete roof of hollow steel mould construction, spanning 22ft., was used.

Contractors

Mr. R. Wood, F.R.I.C.S., A.R.I.B.A., was the divisional architect in charge, and Holland & Hannen and Cubitts (Scotland), Ltd., were the contractors. The British Reinforced Concrete Engineering Co., Ltd., were the design engineers for the reinforced concrete work and also supplied the reinforcement.

TOWER BLOCKS A FEATURE OF OXFORD NEIGHBOURHOOD CENTRE

TWO 15-storey blocks of flats are being erected by Oxford City Council as part of a scheme for provision of a neighbourhood centre on the large and growing Blackbird Leys Estate.

The blocks will have high speed lifts and it is proposed to provide laundry facilities, a covered play area for children, and a hobbies' room for the use of tenants. In addition, garages, individual stores and open parking will be provided.

On the west of the island there will be a unit of 12 shops built in three articulated

blocks. Each shop will have a two-storey maisonnette above with its own private roof garden space at the rear.

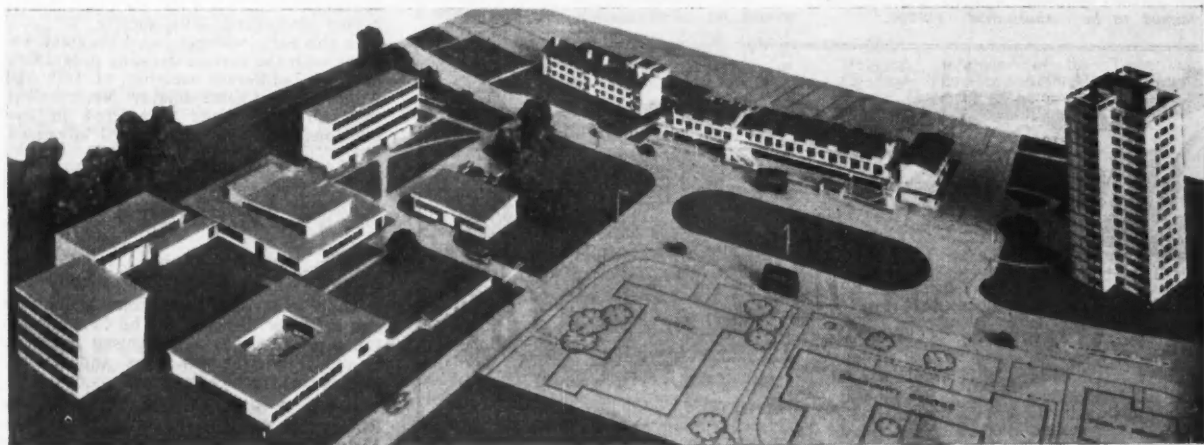
On the south-east corner, the education committee propose building a secondary modern school. The plan of the school is based on the campus principle, in four detached blocks. The two four-storey blocks contain teaching rooms and a library.

The large central block of the school includes the hall, with clerestory lighting, dining space, administration and changing room accommodation, and is linked to the gymnasium.

The single-storey block, with a central courtyard, includes teaching space for general science, crafts and housecraft. The small single-storey block on the north-west corner of the site is designed for woodwork and metalwork purposes.

On the east side of the traffic island there are sites for a church, community centre and public house. Plans are being prepared for the combined community centre and youth club.

Contractors of the 15-storey blocks of flats are John Laing and Son, Ltd. The scheme has been designed by the city architect and planning officer, Mr. E. G. Chandler, A.R.I.B.A., M.T.P.I., and the deputy city architect and planning officer, Mr. D. Murray, A.R.I.B.A., A.M.T.P.I., with other architectural staff.



A model of the development, showing one of the 15-storey blocks

Talking of Safety

by

"DRAGEE"

MR. SMITH'S curious mishap reminds me of a recent incident with a goods hoist when the consequences were less happy. I had just returned to my office from a morning conference when the telephone rang. It was the chief engineer.

"Glad you're back," he said. "There's been a smash-up with a barrow hoist at Factory Lane. One man seriously hurt. Can you go over this afternoon? Kennedy's in charge. He's doing everything that's necessary, but naturally he's a bit shaken up and he may need some help. I'm not quite clear what's happened, but I gather there's been a bad fall."

"I'll go over right away."

"Good. Ring me back when you've got something definite."

Before I left I had a quick look at the Factory Lane site record card. The job had been running for several months and the few accidents which had occurred were all of a very minor nature. Kennedy, I knew, was a careful type, and I could guess how shocked he must have been.

He was waiting for me when I drove in through the entrance. I left the car in a quiet corner and walked back with him to the office. It had been raining heavily, but now the sky was clear.

"I've just got back from the hospital. I'm afraid he's pretty bad—concussion, broken leg and heaven knows what else—they hadn't done the X-ray when I left. He's unmarried—lives in lodgings just down the street. I've seen his landlady. Can't do anything more—just hoping for the best, now."

"I'm very sorry," I said. "Can you tell me what happened?"

"I can tell you how it happened but I can't yet tell you *why* it happened." Seeing my puzzled glance he added: "Oh, I'm not trying to talk in riddles. The whole business is mighty queer."

It appears that the accident occurred shortly after the men returned to work from their morning tea-break. They had been sitting in their canteen because the rain was coming down heavily, and in fact it was some time past the official tea-break when they got back to work. Dick Lucas—the injured man—had been labouring at the top level of the scaffold, and the first thing anyone knew about the accident was

"Dragee," who is a practising safety engineer, would welcome subjects for discussion in this column. All names of persons mentioned in these discussions are entirely fictitious. Questions of law are expressed as the author's personal opinions and are not claimed to be authoritative.—EDITOR.

the appalling crash as the hoist platform—and Lucas—landed at ground level.

"Where was the operator?" I asked, as we walked across the site to the foot of the hoist tower.

"That's the odd thing," said Kennedy. "The operator wasn't anywhere around when it happened. He says he was just leaving the messroom when he heard the crash. He had gone back to get some cigarettes from Pete, the messroom man."

"I suppose there's no doubt about that?"

"None at all. I've already made a check. In any case, Arthur is a very reliable chap. He never allows any liberties with the hoist—insists on the gates being kept closed, and so on. Nobody else would dare to touch the hoist with Arthur around."

"So Dick wasn't deliberately riding down on the hoist?"

"No—definitely not. That barrow over there was lying in the enclosure close to Dick. It was probably an empty barrow which Dick was putting on to the hoist platform upstairs when something went wrong."

"Where's the control rope?" I asked.

"Dangling up in the air," said Kennedy, pointing upwards. "The counterweight on the other side of the head sheave has pulled it up. Normally it would be fastened to this tube, but it must have been dislodged when the crash occurred."

"Have you tested the hoist driving gear?"

"Yes—everything is perfectly sound. Lifting rope O.K., clutch and brake in good order. Everything according to the book."

"Could we have a word with Arthur?" I asked.

The man explained how he had secured the end of the control rope.

"It must have got knocked off by the crash," he said. "I distinctly remember tying it down just before the tea-break. It had got a bit loose so I took up the slack and fastened it again to this tube."

"Had it started to rain at that time?" I asked.

"No—it didn't begin until we were having tea."

At my request, Arthur regained the end of the rope, and tied it to the guard rail. It was an ordinary fibre rope, and very wet. A light began to dawn.

"This rope was dry when it was made fast," I said, "but when the rain began it got soaked and that probably caused it to shrink. You see what would happen then?"

"Yes," said Kennedy. "The winch lever would be lifted slightly, so that only a

very little extra weight on the hoist platform would be needed to make it fall. It must have been disturbed when Dick wheeled the barrow on to it, and they would all go down together."

Careful tests established this theory, and suggested a simple remedy—to leave some slack in the rope on every occasion when making fast.

Dick's recovery was slow and painful, but at least we had tracked down and effectively countered another lurking hazard.

EXPANSION OF EUROPEAN CEMENT INDUSTRY

In 1959 there was a marked recovery in the volume of cement exports from European countries, according to statistics published by the Organisation for European Economic Co-operation, and further expansion of the industry in the O.E.E.C. countries is forecast in 1960, due to the continued high rate of activity in the building industry.

Member countries' total cement output in 1959 was 91,500,000 tons, representing an increase over 1958 of approximately 10,000,000 tons, or 12 per cent.

During recent years, exports from member countries have been declining steadily, mainly due to the smaller demand from third countries. But 1959 shows a reversal of this trend, total exports being 12 per cent. higher than in 1958, as compared with a drop of 18 per cent. for the period 1957-1958. The increase was far greater in the intra-European trade than in exports to non-member countries. All countries exported more, except for the United Kingdom, Spain and Portugal.

COUNCIL'S URGED TO BUILD MORE FLATLETS

Mr. Henry Brooke, Minister of Housing and Local Government, urges housing authorities who have not yet built flatlets for old people to review their building programmes so as to include provision for them at the earliest opportunity.

Local authorities are told this in a circular drawing their attention to a Ministry handbook "More Flatlets for Old People," (published by H.M.S.O. price 2s.) which brings up to date, and develops in the light of experience, ideas published in an earlier booklet in May, 1958.

HIGHWAY MAINTENANCE IN GLOUCESTERSHIRE

Mr. R. A. Downs, Gloucestershire county surveyor, in a report to the County Council, states that on August 15 expenditure on maintenance and minor improvement works had reach 36 per cent. of the approved estimate, works in this category having proceeded satisfactorily.

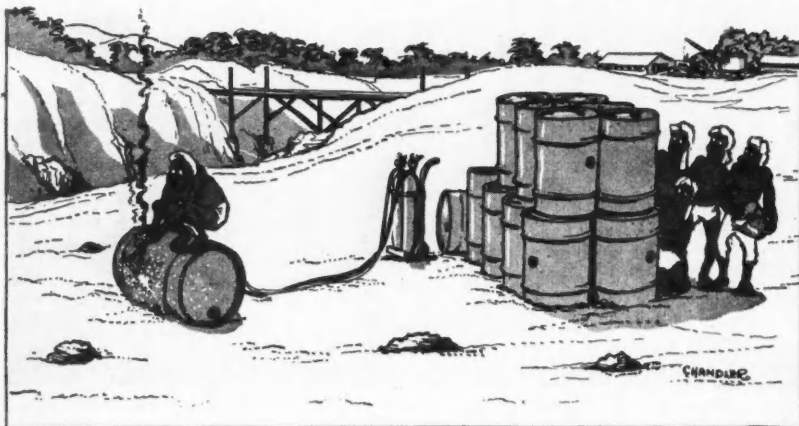
In the early summer rapid progress was made with the surface dressing programme but the indifferent weather of July and August caused some delays. Nevertheless, the work has been completed in two divisions and is generally well advanced.

Obituary

It is with regret that *The Contract Journal* records the death of the following:

Mr. F. G. Atherton, a mining engineer and a former director of The Cementation Co., Ltd. He was a recognised authority on shaft sinking problems and ground engineering techniques.

Mr. J. P. Rudd, senior partner in the firm of Kitching and Co., architects, Middlesbrough, and a past chairman of the Teeside branch of the Northern Architectural Association.



INCREASE IN STEEL DELIVERIES

THE production of steel in August was still affected by the summer holidays. It reached an average of 422,900 tons a week compared with 391,400 tons a week in July and with 337,100 tons a week in August, 1959.

The results of the census taken at the end of June, 1960, are now almost complete and indicate that the stocks held by users rose during the second quarter by 210,000 tons. This is somewhat less than the preliminary estimate. The June census also indicates that the rise in users' stocks in the first quarter was 240,000 tons, rather more than was estimated earlier. Over the first half-year the rise amounted to 450,000 tons or 14 per cent., confirming the assessment made last month.

The rapid increase in stocks occurred mainly at the larger privately owned firms where the stocks rose by 15 per cent. and 10 per cent. in the first two quarters of the year, respectively. Stocks held by smaller private firms and by the public organisations, although on an upward trend, were rising more slowly.

Deliveries

Deliveries of steel sheet from the continuous mills show a steady rise. Among the other products all except colliery arches show substantial increases in 1960 compared with 1959 when demand generally was slack. In addition the light re-rolled products such as wire rod, ferro-concrete bars, light sections and strip all show substantial increases compared with 1957, the previous most active year.

CARE AND MAINTENANCE

The second in the new B.B.C. series of "Building Matters" programmes, on Tuesday, September 27, will deal with questions of care and maintenance.

The speakers will be: Charles Crichton and K. Pearce, builders; Edward Mills, architect; H. Kaylor, civil engineer, and A. Roberts, quantity surveyor.

ANGLE BAY TANKER TERMINAL

With reference to the article on Angle Bay Tanker Terminal (September 8 issue), Shellabear, Price, Ltd., point out that their address should have read Auckland House, New Zealand Avenue, Walton-on-Thames.

REVISED PROCEDURE FOR LISTING M.O.W. CONTRACTORS

THE forms for the annual census in the building industry, which the Ministry of Works will be sending to contractors later this month, will be accompanied by a note explaining the Ministry's revised procedure for listing possible contractors for its constructional work.

All firms employing more than five men who are not already on the Ministry's approved list of contractors can apply to be put on the list by writing for an application form (M.O.W. 756). Contractors in England and Wales can obtain this from the Director of Contracts (Con 2F), Ministry of Works, Abell House, John Islip Street, London, S.W.1. In Scotland, applicants must be capable of acting as main contractors, and should write to Contracts Branch, Ministry of Works, Broomhouse Drive, Saughton, Edinburgh, 11.

The form which contractors will receive will call for particulars of their capacity and will ask for the names of other Government departments, local authorities or public bodies for which they have done work. The completed form will have to be supported by a certificate from a qualified architect, surveyor or engineer that the firm is considered a suitable applicant for entry on the Ministry's list.

When the Ministry receives the completed form it will take up references and consider adding the firm's name to a provisional list of contractors. When the Ministry has jobs within the firm's range coming forward, or as may be convenient, it may inspect the firm's facilities and work performed and if these are satisfactory will then consider adding the firm to its approved list and on the short list to be selected for invitation to tender.

The Ministry emphasises that inclusion on the provisional list or the approved list does not mean that a firm will be invited to tender in the near future or at frequent intervals. Many thousands of firms are already on the approved list and the amount of work carried out by the M.O.W. in any one area is limited.

Any firm employing more than five men which does not receive the Ministry's forms for the annual census in the building industry and with it a note explaining the new procedure for listing possible contractors, should write to: The Ministry of Works (A.S.151), Lambeth Bridge House, London, S.E.1.

MUNICIPAL ENGINEERS' PARKING CONVENTION

WHAT should be done now to provide places for motorists to park on—and off—the street? Five experts, chartered municipal engineers, will give their solutions to this top priority problem at a convention organised by The Institution of Municipal Engineers to be held at Central Hall, London, on October 6.

Speakers will be: Mr. John L. Beckett, Leicester city engineer, surveyor and planning officer (whose Paper will be "Traffic and the Parking Problem"); Mr. A. W. Hogg, Westminster city engineer ("Control of Street Parking"); Mr. Granville Berry, Coventry city engineer and surveyor ("Roof-top Parking and Mechanical Parking"); Mr. D. J. Howe, Brighton borough engineer and surveyor; and Mr. E. O. Baxter, Hastings borough engineer and surveyor ("Parking at Seaside Towns").

Further information about the convention from: The Institution of Municipal Engineers, 84 Eccleston Square, London, S.W.1.

MITCHELL CONSTRUCTION IN RHODESIA

The Mitchell Construction Co., Ltd., of Peterborough and London, are opening an office in Lusaka, Northern Rhodesia. The company will operate throughout the Federation of Rhodesia and Nyasaland, undertaking all types of building and civil engineering works.

Mr. Basil Darlington, who has been attached to the Contracts Department of the parent company at Peterborough, has been appointed general manager of the Rhodesian office.

BLAW KNOX FILMS AVAILABLE ON LOAN

Blaw Knox, Ltd., London, S.W.3, announce that they have available on loan two 16mm. colour films—"Paving the Way," showing the PF90 Paver at work on the M.1 (running time 20 minutes), and "The Hydrascoop," a silent film featuring the Blaw Knox Excavator Loader demolishing the old Chelsea Barracks and handling coal (running time approximately 15 minutes).

FOR THE DIARY

Sept. 23
Commercial Motor Show, Earl's Court, London, Sept. 23—Oct. 1.

Sept. 27
Meeting of the Mid-Southern branch of the Contractors' Mechanical Plant Engineers, The George Hotel, King Street, Reading, 7.30 p.m. Film show.

Sept. 30
Meeting of the Metropolitan and Southern branch of the Institute of Sewage Purification, Friends House, Euston Road, London, N.W.1. 6.30 p.m. Discussion—New and Pending Legislation—introduced by J. L. Spiller.
Southern District of the Institution of Municipal Engineers. Lunch and meeting at Swindon.

Oct. 3
Conference of the Institute of Quarrying, North British Hotel, Edinburgh, Oct. 3-6.

Oct. 5
Meeting of the North West branch of the Contractors' Mechanical Plant Engineers, Kirkby Executive Club, Liverpool. 7.30 p.m. Ladies' Night.

Oct. 6
Convention on Parking arranged by the Institution of Municipal Engineers at Central Hall, London, 10 a.m.

Oct. 6
Meeting of the London Branch of the Contractors' Mechanical Plant Engineers at Red House Hotel, Redbridge, 7.30 p.m.

Oct. 10
Meeting of London branch of the Institution of Plant Engineers, at the Royal Society of Arts, John Adam Street, London, W.C.2, at 7 p.m. An international Paper "Plant Engineering on the Continent."

Oct. 11
Building Trades Exhibition, City Hall, Deansgate, Manchester. Oct. 11-22.
Annual dinner of the Contractors' Plant Association, Dorchester Hotel, London, 7.30 p.m.

Meeting of the Birmingham branch of the Institution of Plant Engineers, Hotel Leofric, Coventry, at 7.30 p.m. Talk on "Modern Air Compressors and Equipment."

Oct. 12
South Western Branch of the Institution of Highway Engineers. Meeting at Fort's of Milsom Street, Bath, 12.15 p.m., at the invitation of the Bituminous Roads Development Group.

Oct. 13
Twenty-first national conference of the Council for the Preservation of Rural England, Pavilion, Weymouth. Oct. 13-15.

Oct. 14
Annual dinner and dance of the Institute of Quantity Surveyors at the Trocadero Restaurant, London, W.1.

Joint meeting of the Southern District of the Institution of Municipal Engineers with the Institution of Civil Engineers (South Western) at the Military College of Science, Shrivenham, Berks.

Oct. 18
National conference of the Town and Country Planning Association, Church House, Great Smith Street, London, S.W.1. "Planning and the Motor Vehicle." Oct. 18-19.

Oct. 19
Annual general meeting of the Institute of Quantity Surveyors at 6.30 p.m.

Oct. 20
Meeting of the Yorkshire branch of the Contractors' Mechanical Plant Engineers, Station Hotel, York. 7.30 p.m. Lecture on "Plant Maintenance."

Oct. 21
Annual dinner of the Society of Engineers at the House of Commons.

Meeting of the Midland branch of the Contractors' Mechanical Plant Engineers, Imperial Hotel, Birmingham. 7.30 p.m. B. D. Richardson, Lecturer in the Department of Civil Engineering, University of Birmingham, on "Traffic Engineering."

Trade Section

"GYRAMIXER" DEVELOPED FOR HIGH SPEED CONCRETE MIXING

THE new 42/28B "Gyramixer," announced last week by Blaw Knox, Ltd., 94 Brompton Road, London, S.W.3, is a stationary horizontal type unit, having an unmixed batch capacity of 42 cu. ft., and a 28 cu. ft. mixed batch capacity. It has been developed for high speed mixing of concrete, to any specification, ranging from pavement quality to harsh lean mixes.

According to the manufacturers, the unit maintains an output of up to 60 cu. yd. per hour—regardless of the type of mix. Each batch is uniformly mixed in 20 to 30 seconds, and a full 1 cu. yd. batch is completely discharged in 15 to 20 seconds.

The "Gyramixer" pan forms an integral part of the rigid base structure and is manufactured from wear-resisting alloy steel. The simple overhead drive obviates the need for a central pedestal, reducing pan diameter and providing optimum capacity without excessive depth of mix.

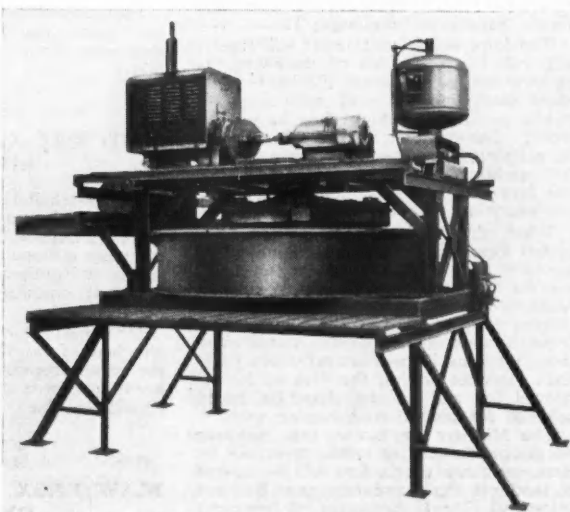
Discharge of all mixes is effected by the power-operated discharge gate without the assistance of plough blades. The rectangular sliding gate is 13.5 sq. ft. in area and is mounted on rollers running on shrouded tracks; automatic scrapers prevent build-up of concrete. Opening and closing of the discharge gate is controlled by a horizontal pneumatic ram, a final positive seal being obtained by a vertical jacking ram.

Mixing Blades

The mixing unit comprises a rotating gearbox which revolves about the centre of the pan. It carries two stars, each rotating about its own axis and fitted with three mixing blades. Floor and wall scraper blades are also attached to the rotating gearbox.

The stars rotate at unequal radii and the blade path has been designed to ensure that the entire pan area is covered during each revolution. The floor and wall scraper blades direct materials from the edge of the pan into the path of the mixing blades so that the batch is systematically and thoroughly mixed.

Blades are manufactured from wear-resisting materials and are rigidly mounted on arms which are attached to the rotating stars through torsional rubber bushes.



42/28B "Gyramixer" unit

This arrangement provides adequate rigidity to ensure that blades do not deviate from their designed path except where an obstruction is encountered, when the blades will ride over the obstacle.

Power Unit and Primary Drive

Normally the "Gyramixer" is powered by a totally enclosed squirrel cage electric motor of 35 b.h.p. Alternatively, a 38 b.h.p. diesel engine drive with clutch can be substituted.

Drive from the motor to the mixing unit is taken through a helical spur reduction gearbox and a layshaft incorporating

Hardy-Spicer universal joints at each end, to a David Brown "Radicon" worm reduction unit.

The output shaft of the "Radicon" unit is supported by an additional pilot bearing, and carries a spur pinion mating with a horizontal spur wheel which is keyed to the main vertical drive shaft of the mixing unit.

This main vertical drive shaft is supported on large-diameter tapered roller bearings and carries the weight of and drives the rotating gearbox which is keyed to the tapered lower end of the shaft.

Mixing Unit Drive

The rotating gearbox provides the principal concentric rotation of the stars about the pan centre. Rotation of the stars is achieved by a pinion, keyed to each shaft, engaging directly on one side and through intermediate pinions on the other, with a fixed sun gear wheel.

All gears are manufactured from specially selected alloy steels. They are gas carburised and hardened in furnaces equipped with atmospheric control, thus ensuring maximum surface efficiency. Gear drives are totally enclosed in oil bath type gear cases.

Pressurised Water Supply

A vertical type water tank of 35 gallons capacity with pneumatically operated discharge, supplies water for the mix. It is measured volumetrically by means of an adjustable siphon which is set accurately by a gauge calibrated in pounds and gallons. Water is pressurised to effect rapid discharge through a distribution pipe located over the aggregate feed chute.

Power Batch Loader

The "Gyramixer" is designed for operation in conjunction with batching plants but alternative loading arrangements include a power batch loader in which the aggregate feed to the mixer pan is by a 42 cu. ft. capacity power-operated skip which is mounted on track rollers running in channel section guide rails. The guide rails are cranked at the lower end to position the skip for fast loading without spillage. The skip is hoisted by a special heavy-duty electric winch powered by a 7.5-h.p. totally enclosed, fan-cooled, weatherproof type, squirrel cage motor fitted with a 6in. electro-magnetic brake.

Drive from the motor to the winch drum is through a totally enclosed gearbox which is bolted directly to the motor to form an integral unit. The winch is enclosed in a weatherproof housing. Diesel engine-driven units can be arranged for skip hoisting to be powered by the mixer prime-mover incorporating heavy duty clutch and brake.

WHITE LINE UNITS CUT ROADMARKING COSTS

A new method of road marking, developed and patented by Wimpey Asphalt and Causeway Reinforcement, Ltd., makes use of white line units which are a combination of triangular steel reinforcement, mastic asphalt and a white topping of verynyl strip secured to the armour frame with a bonding material.

The verynyl surface is exceptionally white, self-cleaning, anti-skid, and immune from attack by oil, grease, petrol or diesel fuel. The units are sunk level with the road, avoiding tyre noise and ensuring maximum safety. Each unit is 3ft. long, 1in. deep, and of the standard 4in. width. Other sizes, and letters, can be supplied to order.

Considerable economy is claimed as each unit is complete in itself, no skilled labour, unusual care in handling, or special plant is needed.

RUBEROID TO BE MADE IN AUSTRALIA

Sir Richard Yeabsley, chairman of The Ruberoid Co., Ltd., announced in London recently the formation of The Ruberoid Company of Australia Pty., Ltd., in conjunction with The Colonial Sugar Refining Co., Ltd., of Sydney.

Ruberoid roofings and bituminous building materials will shortly be available from a plant to be erected in an industrial suburb near Melbourne.

MORE A.E.C.s FOR IRAQ OILFIELDS

A further consignment of bonneted Mammoth Major six-wheelers were recently shipped to the Middle East oilfields for the Iraq Petroleum Company.

These vehicles complete an order for 60, and will be used on pipeline construction, drilling operations, pipe laying and general haulage.

SEMI-AUTOMATIC WELDING PROCESS

Rockwell, Ltd., Croydon, Surrey, have introduced the Comet Series II process for semi-automatic welding. This new version embodies several improvements.

The CO₂ cylinder is now mounted on the trolley which transports the equipment. The modified wire drum incorporates a tension device. This device, with an improved feed box, enables one coil to be fed in after another, thereby eliminating wastage of 15ft. of welding wire.

The process will now permit two alternative sizes of wire spool—one of 12in. and the other of 16in. nominal bore.

The original equipment was intended for use with the Rockwell Autopak welding transformer. In the new version, the design enables it to be supplied by any welding power source of sufficient capacity, either a.c. or d.c. The head has been modified and control of arc volts simplified.

Trade Section

WHITLOCK INTRODUCE NEW RANGE OF EARTHMOVING EQUIPMENT

10-ton Dumper and Dual-purpose Excavator

A COMPLETE new range of earth-moving equipment, including a 10-ton dumper and a dual-purpose excavator and power shovel, has been introduced by Whitlock Bros., Ltd., Great Yeldham, Essex. The machines were demonstrated to a large number of visitors last week, following the opening for the company of factory extensions totally 100,000 sq. ft.

Dinkum 60

Claimed to be the most powerful excavator which the company have produced, the Dinkum 60, with which is combined a new range of large-capacity buckets, has an arc of swing of 190 degrees provided by twin double-acting rams which are interconnected and protected by a special damping device to avoid shock loads on the machine.

A feature of the machine is the fitting of hydraulic stabilisers which enable leveling-up to be carried out from the driving position. These stabilisers are designed to open up from 6ft. to 13ft. 6in., providing stability and at the same time permitting trench excavation close to such obstructions as the walls of buildings.

Another feature is the use of an improved type of rotary seal which, it is stated, enables trouble-free hydraulic tubes to be built into the slewpost with short connecting hoses. Banjo couplings are fitted to hoses at all moving points.

The hydraulic pressure is 1,650 p.s.i., and power is derived from a fan-cooled vane pump with a capacity of 30 gallons per minute.

The bucket ram is fitted with universal joints to give constant self-alignment, as are the dig and lift rams, which are interchangeable. Double-acting stabiliser rams are fitted with ball joints.

A variety of attachments are available for the machine, including a subsoiler blade; a lifting shackle for handling pipes; a rotor cutter for breaking up hard surfaces in retorts and filter boxes; a hydraulic power grab; and special buckets, such as the square hole digging bucket.

Performance figures and dimensions for the Dinkum 60 are given as follows: maximum depth of dig below ground level,

13ft. 6in.; maximum depth of dig below ground level with extension, 17ft.; maximum reach from swing axis, 16ft. 3in.; maximum loading height, 12ft. 6in.; maximum loading height with extension arm, 16ft. 6in.; maximum height under teeth (bucket extended), 16ft. 6in.; centre line of rear wheels to centre line of swing axis, 4ft. 1in.; angle of side hill operation, 20 degrees; overall width with stabilisers retracted, 6ft. 6in.; width (stabilisers fully



Dinkum 60 excavator equipped with grab and combined with Whitlock 66 power shovel

extended), 13ft. 6in.; overall height in travel position, 11ft. 9in.; overall length in travel position (excavator only), 19ft. 3in.; maximum overall length in travel position (excavator and shovel), 24ft. 6in.; centre line of rear wheels to extremity of bonnet, 9ft.

Power-assisted steering is standard, as is electric starting and lighting. Six forward and two reverse gears give speeds forward at 1,600 r.p.m. ranging from 2.07 m.p.h. to 13.16 m.p.h., and in reverse

from 2.80 m.p.h. to 5.03 m.p.h. Brakes are of a mechanical internal expanding type, operating independently or together, and with hand control.

Whitlock 66 Shovel

The Whitlock 66 power shovel is available as a separate power unit or in conjunction with the Dinkum 60 excavator, in which combination it is shown in the accompanying photograph. It may also be acquired with a rear-mounted compressor.

Basic construction consists of a solid steel axle beam, heavy-duty steel hubs and a boxed underframe which is braced right back to the driving axle. Heavy-duty double-acting lift and crowd rams are provided with ball joints, and power-assisted steering is standard.

Pressure and delivery of the hydraulic system is 1,500 p.s.i. by 13 gallons per minute at 1,600 r.p.m. The valve control

block is a two-section unit and incorporates an overload relief valve.

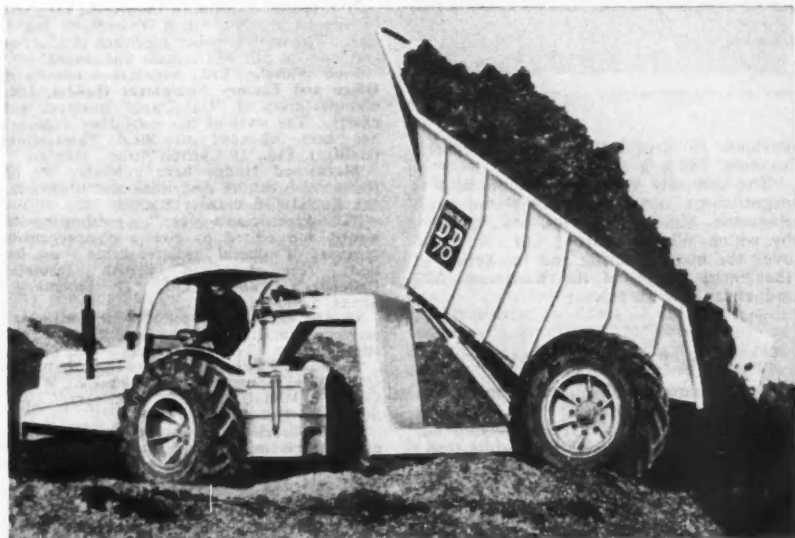
Apart from shovels, attachments include 72in. and 84in. bulldozing blades; a maintenance platform which will lift 5½ cwt. to a height of 20ft.; crane attachments to lift 20cwt. or 15cwt.; a high lift loader attachment for feeding batching plants, etc.; and a roll attachment for compaction purposes. With this latter equipment, when positioned for work, the front wheels of the unit are hydraulically lifted off the ground transferring the full weight of the unit to the roll cylinders, which may also be water-ballasted. For normal road transport from site to site the roll attachment is carried off the ground on the power shovel lift arms.

Performance figures and dimensions are as follows: overall height fully raised, 13ft. 4in. with teeth fitted and 13ft. 9in. with arrowhead fitted; maximum dump height, 8ft. 4in. with teeth and 7ft. 11in. with arrowhead; maximum overall length, 17ft. 6in.; over-reach in shovelling position, 5ft. 9in.; over-reach in dump position, 4ft. 6in.; maximum lifting force, 5,800lb.; lifting force at maximum height, 3,325lb.; angle of shovel (dumped at maximum height), 50 degrees to horizontal; shovel widths, 72in. and 84in.; capacities, ½ cu. yd. (1½ cu. yd. light material shovel).

D.D. 70 Dumper

Designed to carry 10-ton loads, the D.D. 70 dumper is built up on 4-14,000 x 24 earthmover tyres with steering activated by a system of four hydraulic rams and a valve control mechanism operated by the steering wheel. This form of hydraulic steering provides fingertip control and the power unit can be moved at right angles to the articulated body, enabling the

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D.D.70 dumper in operation

Trade Section

ROADRAILER PROTOTYPE DEMONSTRATED BY BRITISH RAILWAYS

A PROTOTYPE freight vehicle, designed to run both on road and railway, was demonstrated recently in London by British Railways.

The Roadrailer, as the vehicle will be called, is a road semi-trailer fitted with a minimum of extra equipment to enable it to run on railways. This extra equipment primarily consists of retractable road and rail wheels, working on the same principle as an aircraft undercarriage, and special couplings to enable the two-wheeled vehicles to run coupled together on rail. The vehicle can be hauled on the road by any suitable road tractor.

The rail wheel assembly is a standard set using 2ft. 6in. diameter wheels, the four road wheels at the rear are mounted in pairs on cast steel arms which are hinged to the outer casing of a torsilastic spring. When the running gear is in the rail position, the road wheels contact the underside of the van floor, opening a hinge which provides satisfactory rail clearance and divorces the road gear from the angular action of the torsilastic springs. The transfer of wheels from road to rail position is performed by a reversible 6-h.p. air motor working at 80 p.s.i.

In the running position, either on road or rail, the forward end of the Roadrailer is supported by the one in front. When it is uncoupled, it is necessary to support the front end and landing gear is provided for this purpose.

Normal air-operated brakes are used on the road, and special vacuum-operated disc brakes are fitted for rail operation.

Two other pieces of equipment are required, comprising an adaptor truck which supports the front end of the first vehicle when on rail, and at the same time incorporates the special Roadrailer coupler and the standard railway buffing and draw-gear; and a portable air compressor, necessary at each point at which the vehicle is transferred from road to rail or vice versa.

Terminal facilities are of the simplest, merely requiring surrounding ground built up to rail height and some parking and manoeuvring space for the vehicles and their road prime movers.

The vehicle was conceived independently by British Railways and the Chesapeake and Ohio Railway of the United States, and the main development contractors were Pressed Steel Co., Ltd.



Prototype Roadrailer

(Concluded from previous page)

whole unit to be turned in a radius of 13ft. The body in its tipped position stands at 65 degrees and is tipped by heavy-duty double-acting rams fitted with universal joints.

The same power unit as in the excavator and power shovel is used, consisting of a four-cylinder diesel engine, developing 51.8 b.h.p. at 1,600 r.p.m. The hydraulic system incorporates a vane type pump, full flow micron filters, three-position dumper valve and servo type steering valve.

Transmission details are similar to those of the Dinkum 60, as are the forward and reverse speeds.

General dimensions and capacities are as follows: overall length, 24ft. 8in.; overall width, 7ft. 9in.; wheelbase, 13ft. 4in.; turning circle, 26ft.; track—front, 5ft. 8in., rear, 6ft. 5½in.; maximum height, 8ft.; angle of tip, 65 degrees; capacity, 7 cu. yd.;

payload, 10 tons; articulation 15 degrees; steering, 180 degrees.

The company have also announced that negotiations have been completed with Ransomes Sims and Jeffries, Ltd., Ipswich, by which Whitlock Bros., Ltd., will take over the manufacturing and marketing of the entire range of the Ransomes MG industrial crawler tractor.

NEW PAINT REMOVER

It is claimed that no cleaning of the surface is needed after the use of a new paint remover—Pitan Type C—which has been produced by Allweather Paints, Ltd., 36 Great Queen Street, London, W.C.2. The remover is applied by a flat paint brush and the old material removed with a rag or scraper. It is non-inflammable and may also be used to restore oxidised paint brushes.

SAVILLE DEMONSTRATE IH MACHINES

OPERATORS of earthmoving equipment in the South of England gathered last week at the Feltham Works of Saville (Tractors), Ltd., to watch a demonstration of recent machines in the International Harvester range.

Four units were shown, among them the latest British-built models—the BTD-8 crawler tractor and the B-41-1 mobile crane. Also on view were the biggest International tractor built in this country, the BTD-20, and the new American-made 9K3 International Drott Skid Shovel with 4-in-1 bucket.

HARDENER AND SEALER FOR CONCRETE

Two new products for use with concrete—a sealer to prevent dusty surfaces and a hardener to speed up setting—have been announced by J. Manger and Son, Ltd., Abbot Street, London, E.8.

The liquid sealer contains a colouring agent which disappears soon after exposure to light. It reduces surface permeability and renders the concrete reasonably waterproof. One gallon, costing 7s. 6d., is said to give an average coverage of 200-300 sq. ft.

The hardener liquid is added to the mix to impart a high early strength to the concrete and also to give protection against frost in cold weather. It is used in the gauging water at a dilution of one part to 10 parts of concrete.

IMPROVED "TALURIT" SAFETY SLING

Cable Covers, Ltd., St. Stephen's House, Westminster, S.W.1, have now introduced an improved "Talurit" Safety Sling which can be supplied in any length, width or lifting capacity, and with a variety of terminations.

The terminations can be fitted at each end of the sling or a combination of any two terminations, one at either end of the sling.

TRADE NEWS IN BRIEF

R. F. Morrison and Co., Ltd., 106 Crow Road, Glasgow, W.1, have announced that Quiltile acoustic ceilings can now be supplied with a thin plastic film on the reverse of the tile, eliminating pattern staining. These ceilings are now handled in London and the Home Counties by Campbell Denis, Ltd., 48a Elizabeth Street, London, S.W.1.

For administrative reasons, the Salt Division of Imperial Chemical Industries, Ltd., will be merged into the Alkali Division on Jan. 1, 1961. The general policy regarding production and sales of salt will remain unchanged.

Fred Whiteley, Ltd., have taken control of Office and Factory Equipment (Leeds), Ltd., manufacturers of "Uni-Graph" business wall charts. The style of this subsidiary company has been changed to Steel Fabrications (Halifax), Ltd., 19 Carlton Street, Halifax.

Blackwood Hodge have published an informative brochure describing and illustrating the Euclid C-6 crawler tractor.

"The Electrician's Mate," a publication designed and edited to give a comprehensive coverage of mineral insulated cable work, has been received from British Insulated Callender's Cables, Ltd., 21 Bloomsbury Street, London, W.C.1.

Crypto, Ltd., have opened a new sales and service depot at 333 Green Lane, Seven Kings, Ilford, Essex. Tel: Goodmayes 0435.

P. and B. Plastics, Ltd., have recently moved into larger premises at Waterloo Works, Gorsey Mount Street, Stockport. Tel: Stockport 4007/8.

A new brochure describing their horizontal drum truck mixers and agitators has been published by Ransomes and Rapier, Ltd., Waterside Works, Ipswich.

Forward Trust, Ltd., the hire purchase subsidiary of Midland Bank and Clydesdale and North of Scotland Bank, have opened a new branch office at Norfolk House, Upper High Street, Guildford.

Trade Section

100-TON ELECTRIC TRAVELLING CRANE SUCCESSFULLY TESTED

Largest of its Type in the World

THE first of two 100-ton electric travelling monotor cranes, the largest of their type in the world, has been successfully tested by Butters Bros. and Co., Ltd., Glasgow, and handed over to Cammell Laird and Co. (Shipbuilders and Engineers), Ltd., Birkenhead.

The crane lifts the maximum load of 100 tons at a radius of 122ft. while standing free on a rail track set at 55ft. track centres. The travelling tower is 120ft. high supported on 32 rail wheels of the centre flanged type.

The base of the tower is constructed to give a portal opening 48ft. high and 49ft. wide thus ensuring a free passage to the building berths the level of which is 50ft. below the rail level. The luffing jib is 175ft. long constructed throughout of aluminium alloy riveted sections. The top of the revolving mast of the crane is 214ft. above rail level and the point of the jib when at minimum radius is 300ft. above rail level.

From his elevated position the operator controls all motions of the crane which is driven by eight motors. Behind the operator's cabin is the machinery house in which is located the main hoist, jib luffing, levelling and sluing motions of the crane. The machinery house is 55ft. long and 24ft. 6in. broad by 15ft. high of sheet steel construction.

Main Hoist Motion

The main hoist motion is driven by a 115 b.h.p. motor which lifts the 100-ton load on a triple pulley block at a speed of 10ft. per minute. Through a change speed clutch, loads up to 40 tons can be lifted at a speed of 25ft. per minute. The spur gearing of the hoist motion is enclosed in cast-iron gearboxes and runs in an oil bath, with the exception of the barrel spur wheel and its engaging pinion. The gear cases are fitted with ball and roller bearings to carry the shafts.

An electro-mechanical brake is fitted to the motor extension shaft capable of controlling the loaded motion. An additional spring loaded, air-released disc brake is included in the motion on the barrel pinion shaft. It will be noted that this brake is spring loaded to be continually in the "Holding" position and is released by air through an airflow regulator valve in the operator's cabin. Electrical counter current lowering is also included.

The main hoist rope barrel is 10ft. diameter by 11ft. 8in. long, machine grooved to suit the 1½in. diameter rope of 6/37 construction.

The main hook of the crane is of the "Flemish Eye" type mounted on a taper roller bearing and suspended from a triple pulley block thereby lifting the loads on six falls of rope.

The auxiliary hoist motion located within the mast frame is driven by a separate 95 b.h.p. motor and capable of lifting loads up to 10 tons at a speed of 90ft. per minute. The spur gearing of this motion is also totally enclosed in a cast-iron gear case and runs in an oil bath. All shafting is mounted on anti-friction bearings. The auxiliary hoist barrel is 3ft. 9in. diameter by 5ft. 6in. long, machine grooved to suit the 1½in. diameter rope of 6/37 construction.



The 100-ton electric travelling monotor crane

The sluing motion for revolving the superstructure, jib and load is driven by a 55 b.h.p. motor running at 720 r.p.m. The 100-ton load can be slued at the maximum radius of 122ft. at a speed of 180ft. per minute.

The motor drives through a flexible coupling to a single reduction spur gearbox. The double output shafts of this spur box drive twin sets of worm and spur reduction gear to the final drive shafts of the motion. These shafts each carry slue race spur pinions which mesh with the main race wheel which is bolted to the top of the travelling tower structure. This racewheel which is nearly 32ft. in diameter is made in 12 segments bolted together to form a ring. The inner face of this ring forms the turned horizontal roller path on which bear the horizontal slue rollers.

An electro-hydraulic brake is fitted to the motor extension shaft of the slue motion. When the main isolating switch is moved to the "On" position, this brake

automatically comes off and leaves the sluing motion under the control of the hydraulic foot tramp in the operator's cabin. When the main power is switched "Off" and the crane is to be left unattended the brake comes on automatically, holding the revolving portion in any required position.

A slip friction clutch drive is fitted in each of the twin worm boxes. This clutch will counteract the effect of any undue sudden stoppages of the sluing motion by preventing any shock load being transmitted back to the motor and primary reduction gear. These clutches are of the cone type on which a predetermined load is applied by means of helical compression springs. The load on these springs is adjusted by means of nuts on the top of the worm box output shafts, and are set to transmit the full torque required to slue the crane. The clutches will slip should this torque be exceeded by the momentum of the rotating parts.

The deadweight of the revolving portion—580 tons—is carried on a spherical roller bearing at the bottom of the mast. This type of bearing is used to allow for the changes in alignment which occur due to the deflection of the structure and also to transmit the horizontal reaction at the base of the mast.

Horizontal slue rollers fitted just below the machinery frame transmit the other horizontal reaction from the mast to the roller path at the top of the tower. Eight of these rollers are fitted—four on the back and four on the front of the mast, mounted in pairs, on compensating beams to transmit the load equally through each roller. Other rollers are fitted two on each side of the mast to give lateral stability, the whole system forming what is in effect a large radial roller bearing.

The travelling motion is driven by four synchronised motors each of 32.5 b.h.p. with one motor located on a driving bogie situated at each corner of the crane.

There are eight centre flanged rail wheels at each corner, of which four are driven by means of worm and spur gears from the motor to the spur rims bolted to the webs of the rail wheels. The worm and wormwheel are carried in an oil-tight cast-iron gearbox; both the worm shaft and wormwheel shaft are mounted on roller thrust bearings and the gear is running in oil.

Flexible Coupling

To absorb any undue shock, a flexible coupling is fitted on the motor extension shafts and on two of these couplings is fitted a large diameter brake wheel on which acts an electro-magnetic brake. This brake is so arranged that there is a time lag between putting off the controller and the coming on of the brake, in order to prevent any undue shocks on the crane structure that would arise due to a sudden braking of this motion.

The bogies and sill girders are individually compensated to take up any irregularities in the track and to spread the wheel load equally between all wheels at any one corner.

The jib is supported at its outer end by means of a multiple rope reefing. The bridle rope is reefed in four parts between the jib point and the bridle frame, passing round compensating pulleys to equalise loads on the four parts of the rope. The bridle frame also carries the reefing pulleys through which the luffing rope—in eight parts—is reefed. The main hoist rope is reefed from the barrel to the mast top and thence to the jib point. On passing over the jib point it is reefed through the three pulleys on the main hoist return block forming a six-part reefing system.

The return part of the main hoist rope is reefed between the jib point and the mast top before passing over the "Wylie" Indicator and down the mast to the levelling barrel. This arrangement provides a levelling effect on the load path, which com-

(Concluded on next page)

Trade Section

NEW COMPANIES

The undermentioned particulars of new companies recently registered are taken from the daily register compiled by Jordan and Sons, Ltd., company registration agents, 116 Chancery Lane, London, W.C.2:—

City Road Builders, Ltd., 9 Bannercross Road, Sheffield, 11. £100. Directors: Francis J. Finnegan and Mrs. E. F. Finnegan, 9 Bannercross Road, Sheffield, 11.

Charles A. Phipps and Co., Ltd., builders. £5,000. Directors: Charles A. Phipps, 149 Percy Avenue, Kingsgate, Broadstairs, Kent; Edward W. Alexander, 157a Grove Road, E.17.

Kernick Building Co., Ltd., £6,000. Permanent directors: Bernard Breakell, 55 Dracaena Avenue, Falmouth, Cornwall; David W. G. Hillier, 10 Poltair Road, Penryn, Corn.

Thurston Building Co., Ltd., 18 Hatter Street, Bury St. Edmunds. £2,500. Directors: Wm. J. Baker and Mrs. Dorothy E. A. Baker, Nostra Domus, Furze Close, Thurston, Bury St. Edmunds.

C. and T. Atkinson (Builders), Ltd., 4 Clog Bridge, Silsden, Yorks. £4,000. Directors: Arthur Atkinson and Clifford Atkinson, 39 Foster Avenue, Silsden, Yorks.; Thomas Atkinson, 10 Main Road, Eastburn, Keighley. Heavy Contractors Equipment and Parts, Ltd., 16 Curzon Street, W.1. £100. Director: John Thomas, 35 Lebanon Avenue, Hanworth, Middx.

Undeb Builders, Ltd., 19 Victoria Square, Aberdare, Glam. £100. Directors: Trefor R. Morgan, Rhydlafar, Glanolyd, Ystradgynlais; Daniel H. Morgan, Ger-y-nant, Main Road, Bryncoch, Neath.

Boz Building Co., Ltd., 6 Hobart Place, S.W.1. £100. Directors: To be appointed by the subscribers. Subscribers: Henry G. Gilbert, 5 Kenley Close, Chislehurst, Kent (secretary); Dennis Langford, 193 Erith Road, Bexleyheath (accountant).

J. V. Yarwood and Co., Ltd., 18-22 Suffolk Road, Cheltenham, plant hirers. £1,000. Directors: Joseph V. Yarwood and Mrs. Agnes M. Yarwood, 23 Benhall Avenue, Cheltenham.

Lesco (Building Contractors), Ltd., 24a Dangan Road, S.W.12. £100. Directors: Patrick Galligan and Mrs. C. Galligan, 26b Percy Road, S.W.12.

Hanson and Stockton (Builders), Ltd., 111 The Headrow, Leeds, 1. £100. Directors: John E. Hanson, The Mount, Ossett, Yorks.; Brian R. Stockton, Manor Cottage, Tadcaster, Yorks.

Farnborough Construction Co., Ltd., builders. £2,000. Directors: Howard O. Billson, "Briangate," Ottershaw, Chertsey, Surrey; Thomas J. O'Connor, 45 Tennyson Road, N.W.6.

A. R. Phillips, Ltd., builders. £100. Directors: Alan R. Phillips and Mrs. D. Phillips, 100 Burnham Avenue, Ickenham.

Robt. Hawkins (Contractors), Ltd., 61a South Road, Southall, builders. £500. Directors: Robert R. Hawkins, 8 Colinet Road, S.W.15.

E. J. Quinn (Construction), Ltd., 51 Inchmery Road, S.E.6, builders. £500. Directors: Edward J. Quinn, 44 Duncombe Hill, S.E.23; Wm. T. Pattinson, 20 Eastbourne Road, Hanworth.

D. Hayers and Co., Ltd., The Smugglers, West Wittering, Sussex, builders. £1,500. Permanent directors: Douglas B. Hayers and Mrs. Elizabeth T. Hayers, 13 Malthouse Cottage, West Wittering, Sussex; James H. Hayers, The Smugglers, West Wittering, Sussex.

Merrion Street Builders, Ltd., 34 Manchester Road, Bradford, 5. £100. Directors: Frank Maude, 44 Well Green Lane, Brighouse; Miss Winifred Goodrick, 99 Swallow Lane, Golcar, Huddersfield.

Phillips and White (Builders), Ltd. £1,000. Directors: Benjamin G. Phillips and Mrs. Violet A. C. Phillips, Chessholme, 7 Glenfield Road, Ashford, Middx.

Banbury Demolition and Excavation Contractors, Ltd., Prudential Chambers, Banbury. £400. Permanent directors: James C. C. Wright, 2 Council Houses, Drayton, near Banbury; Wm. K. Russell, 13 Addison Road, Banbury.

Cambrian Construction Co., Ltd., Burton Chambers, King Street, Carmarthen. £10,000. Directors: Henry B. Davies, Sleepy Hollow, Park View Road, Woldingham; John M. Davies, Derlwyn, Alltwalis Road, Carmarthen.

Pickard and Clay (Builders), Ltd., Cosy Buildings, Low Street, Keighley, Yorks. £1,000. Directors: Lawrence Pickard, 7 Main Road, Morton, Keighley, Yorks.; John Clay, 201 Long Lee Lane, Keighley.

Patton and Child, Ltd., builders. £100. Directors: Vernon E. Patton and Vera C. Patton, 5 Rectory Grove, Croydon, Surrey.

R.A. Contractors (Culford), Ltd., 3 Guildhall Street, Bury St. Edmunds, Suffolk. £750. Directors: Paul A. Rackham and Sheila A. Rackham, Woodside, West Stow, Suffolk.

Paul Hurst (Construction), Ltd., 7-8 Chandos Street, W.1. £2,000. Directors: Paul W. Hurst and Mrs. Pauline F. Hurst, 43 Greystoke Avenue, Pinner, Middx.

Hawkes Green Concrete Co., Ltd., Hawkes Green Trading Estate, Hawkes Green, Cannock. £2,500. Directors: To be appointed by the subscribers. Subscribers: Frederic Cox, 93 Tettenthall Road, Wolverhampton; James A. Blount, The White House, Avenue Road, Wolverhampton (accountants).

V. A. T. Watkins, Ltd., 66 Lincoln Road, Enfield, Middx., builders. £10,000. Permanent directors: Victor A. T. Watkins, Mrs. Bertha Watkins, Victor T. Watkins and Deanna P. Watkins, all of Cartref, Carnaby Road, Brompton, Herts.

BRITISH STANDARDS

Concrete Poles for Electrical Transmission and Traction Systems

This specification (B.S. 607:1960) has been revised and its scope extended to cover requirements for prestressed poles and prestressed poles that may be exposed to impact.

The standard provides design requirements and test procedures for reinforced concrete and prestressed concrete poles suitable for supporting electrical transmission and traction lines, including supports for telegraph and telephone lines. (It does not apply to lighting columns—these are dealt with in B.S. 1308, "Concrete street lighting columns.")

There are six classes of pole based on minimum ultimate transverse loading; and the specification embraces materials, methods of manufacture, earthing, standard lengths and loads, type tests and proof tests.

Recommendations for the provision of holes are given. A drawing shows a typical arrangement of holes to cater for the generally accepted design of high-voltage transmission immediate poles and low-voltage distribution poles; particulars of markings are also provided. Price 4s. 6d.

TORQUE CONTROLLED IMPACT WRENCH

A torque controlled, reversible, impact wrench, designed for close control of final bolt tightness, has been introduced by the Consolidated Pneumatic Tool Co., Ltd., 232 Dawes Road, London, S.W.6.

The wrench is available in two forms, the CP.610-RLTP wrench being equipped for spline drive, whilst the CP.610-RTP has a 1in. conventional square drive. The weight of each model is 23lb., the overall length being 16½in. Hose size for use with the tool is ½in., and the inlet pipe thread size is ½in. The maximum bolt size, when using the lock-out, is 1½in., and the minimum torque is 300ft./lb., the maximum being 600ft./lb.

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bined with the levelling gear, gives a level path during luffing. This type of reefing also reduces the load on the luffing gear and thereby reduces the h.p. of the luffing motor required and the size of bridle and luffing ropes.

Crane Structure

The crane structure, excepting the jib, is of rolled steel sections and plates throughout. Welded construction is employed for the prefabricated sections in the workshops whereas riveted site joints have been used throughout.

The jib of the crane is constructed throughout of aluminium alloy sections and plates. The centres are 175ft. with a cantilever extension at the point of 13ft. centres to carry the auxiliary lift. The depth of the centre is 8ft. 6in. over the main angles and the width 16ft. It is constructed of two main four-angle sections. The two main angle sections are securely braced together with a system of diaphragms and horizontal bracings. The main angles are of H15W.P. and the bracing angles are of H30W.P.

Aluminium alloy N6 rivets are used throughout the jib. Rivets up to ¾in. diameter have pan-heads. The larger diameter rivets have recessed ends producing dimple heads. All rivets are pneumatically driven.

A preview of some of the exhibits to be shown at this year's Commercial Motor Show begins on page 1467. Cost-saving features of the Haas hydro-electric project in California are described in "International Construction" on page 1470.



The Cleveland trencher in this picture is at work on a five-mile stretch of road between Sheffield and Rotherham. Coupled to the machine is a Parker EL loader, so that the excavated soil falls direct on to the conveyor and is then delivered direct to a lorry travelling in front of the trencher. This idea was suggested by Hireplant, Ltd., Morley, following damage to the road surface by excavators removing the soil from the side of the road. The contractors for the work are William Press and Son, Ltd.

Current Constructional Activities

PROJECTS • CONTRACTS • AWARDS

THIS editorial feature provides readers with a comprehensive news service covering forthcoming private and public construction work. Commencing on this page information is given concerning future projects followed by details of tenders being invited. In the third section will be found news of tenders recommended for acceptance, tenders accepted and contracts awarded. Attention is also drawn to the advertisements covering contracts and appointments appearing in the front part of the *Journal*.

BUILDING AND DECORATING (See also Housing Schemes)

Addington, Surrey.—Royal Warehousemen Clerks and Drapers Schools, Russell Hill School, Purley, have launched an appeal for £250,000 for the erection of a new school at Ballard, Addington, and propose scheme for modifications to the existing school. Total estimated cost £450,000.

Adwick-le-Street, Yorks.—U.D.C. to submit to the West Riding C.C. for approval in principle scheme for the erection of a recreation centre with two-bedroom flats at Edward Road, Carcroft. Estimated cost £7,000.

Basildon, Essex.—Standing Joint Committee have approved scheme for the provision of a prefabricated building to be used as a temporary police station. Estimated cost £6,650.

Berkshire.—M.E. have approved the erection of a school at Newbury, for educationally sub-normal pupils, for inclusion in the C.C.'s 1961-62 programme.

Beverley, Yorks.—R.D.C. have applied for sanction to borrow £9,870 for modernisation of Council houses.

Birmingham.—Public Libraries Committee recommended to approve proposed scheme for the erection of a five-storey central library on site of University building at Edmund Street. Estimated cost £11m.

Blackburn, Lancs.—Plans approved for the rebuilding of the Waterloo Hotel, Penny Street for Daniel Thwaites and Co., Ltd.

Bootle, Lancs.—B.C. to apply for sanction to borrow £11,000 for erection of four temporary classrooms, ancillary accommodation and a paved playground area at St. Benet's R.C. Primary School, Netherthorn.

Boston, Lincs.—B.C. recommended to prepare revised plans for proposed new cattle market. Estimated cost £75,000.

Bradford, Yorks.—Leeds Regional Hospital Board have approved outline proposals for remodelling St. Luke's Hospital and St. Luke's Maternity Hospital and plan to build an additional ward block at Royal Infirmary.

Regional Hospital Board proposes the erection of a 600-bed hospital at Horton Green. Estimated cost £31m.

Burnley, Lancs.—B.C. have approved plans to rehouse the town's three secondary modern schools for boys in new premises at an estimated cost of £485,000, and to adapt two of the old buildings as primary schools at a cost of £40,000.

Bury St. Edmunds, Suffolk.—Tenders to be invited shortly for the erection of a 70,000 sq. ft. factory and office building at the Western Industrial estate, for Barber-Greene Olding and Co., Ltd., Hatfield, Herts. Fuller, Hall and Foulsham, 212 High Holborn, London, W.C.1, are the architects for the scheme.

Camberwell.—Tenders are due in at the end of this month for erection of a warehouse, office and factory at 143 Ormside Street, London, S.E.15. Wm. J. Harvey, architect, 334 Dollis Hill Lane, London, N.W.2.

Cardiff.—City Council have approved plan for the provision of additional accommodation at the Council Chamber. Estimated cost £7,220.

Cefn, Denbighs.—Parish Council are to prepare report on scheme for the conversion of the George Edwards Memorial Hall, Well Street, into a dual-purpose public hall and swimming baths.

Chorley, Lancs.—Parochial Council of Charnock Richard Parish Church have approved the erection of a new vicarage. Estimated cost £6,000.

Darlington, Dur.—Worthington and Co., Ltd., Burton-on-Trent, are to rebuild the Nags Head, Tubwell Row, and sketch plans are being prepared by Kitching and Co., 21 Albert

Road, Middlesbrough; R. E. Coleman, Ltd., High Street, Carrville, Durham, have submitted proposals to the authorities for the construction of a prefabricated church hall at St. Luke's Church, Corporation Road.

Dewsbury, Yorks.—Marks and Spencer, Ltd., acquired the three-storey block of office premises at the rear of their premises and at the junction of Bond Street and Union Street for extensions.

Doncaster, Yorks.—B.C. recommended to approve plans for an arcade, involving the demolition and rebuilding of several premises around the bus station, including the Angel and Royal and White Hart Hotels, for the Arndale Property Trust, Ltd., Howard House, Bank Street, Bradford. Estimated cost £1m.

Driffield, Yorks.—U.D.C. raises no objection to plans for new fire station to be erected in Bridlington Road.

Durham.—Co. E.C. have approved the conversion of the rural domestic economy centre at Houghall into science laboratories. Estimated cost £5,000.

Evesham, Worcs.—B.C. have granted outline permission for extension of factory on land at junction of Rynal Place and Conduit Hill, for Willmott's, Ltd., Swan Lane, Evesham.

Frome, Som.—C.C. recommended to approve scheme for the provision of a new branch library. Estimated cost £6,250.

Greenwich.—L.C.C. planning permission is being sought for 122 flats and 120 garages on six sites at Beaconsfield Road, Vanbrugh Park, Vanbrugh Park Road and Westcombe Park Road, for which J. R. Eve and Son, Dean's Yard, S.W.1, are the surveyors.

Guisborough, Yorks.—British Legion are planning the erection of new club premises and branch headquarters at Westgate.

Halifax, Yorks.—B.C. to apply for sanction to borrow £3,500 for adaptation of Westgarth, Victoria Road, Elland, for use as a children's nursery.

B.C. to submit to the Ministry proposed building works programme for 1961-62: Willowfield, adaptation for use as residential establishment (£10,000), purchase and adaptation or erection of a handicapped persons' centre (£10,000).

B.C. to submit to Ministry scheme for male industrial centre to be erected in town centre. Estimated cost £15,000.

Halifax, Yorks.—B.C. recommended to prepare plans for new market on north side of Woolshops, near the town centre.

Heywood, Lancs.—Ministry have approved plans for building a training centre for mentally handicapped people for C.C. Plans to be prepared when negotiations for site are finally settled.

Hinckley, Leics.—Sketchley, Ltd., Sketchley Dye Works, Hinckley, propose to demolish three shops at The Borough, and to erect two new shops on the site.

Hove, Sussex.—B.C. are preparing detailed plans for improvements to sea front between Kingsway Bowling Pavilion and lawns to west of King Alfred, including provision of 40 permanent beach chalets, new shelter, toilets and widening of the Esplanade. Estimated cost £40,000.

Jarrow, Dur.—Smart and Brown (Machine Tools), Ltd., Biggleswade, Bedfordshire, are considering a site at Jarrow for the construction of a factory.

King's Lynn, Norfolk.—M.E. have approved the inclusion of an additional six-classroom block for the County Technical College in the 1962-63 Further Education programme for C.C.

Lambeth.—L.C.C. planning permission is being sought for an office block, 400ft. high, at 80-85 Albert Embankment and Bridgefoot, for which the architects are Fitzroy Robinson and Partners, 3 Grays Inn Square, London, W.C.1.

Leeds.—School Governors have approved in principle outline scheme for alterations at grammar school. Extensions to be carried out in three stages. First stage estimated at £30,000. G. Alan Burnett, architect, 8 Blenheim Terrace, Leeds.

Leeds.—Town Planning Committee have approved plans for erection of shops, banks and a basement bowling alley on land off the main Otley Road, Haadingley, for the Arndale Property Trust, Ltd., Howard House, Bank Street, Bradford; have under consideration plans for erection of a motor showroom, workshop and offices off Wellington Street and Westgate, near Leeds City Centre, for

Rippon Bros., Ltd., Viaduct Street, Huddersfield.

Regional Hospital Board have approved plan for new teaching hospital of 800 beds.

Liskeard, Cornwall.—B.C. are to purchase land at Moorswater for use as an industrial estate.

Liverpool.—Libraries, Museums and Arts Committee have approved plans for first phase of £400,000 project to rebuild bombed museum building in William Street and provide in the first place for a £250,000 L-shaped building containing a basement and three storeys. Project is expected to reach tender stage by the end of the year.

Luton, Beds.—R.D.C. to prepare scheme for the modernisation of old people's dwellings at Station Road, Toddington.

Margate, Kent.—B.C. recommended to approve plans for the erection of two-storey extension to existing staff house at Spurgeons Homes for Trustees of Spurgeons Homes, Park Road, Birchington.

Newcastle upon Tyne.—A Church of England secondary modern school is to be built at Freeman Road. The Diocesan Director of Education is Canon P. M. Martin, 50 Two Ball Lonnen, Newcastle. No architects have yet been selected.

Newport, Mon.—B.C. recommended to apply for sanction to borrow £14,368 for various improvement works at the Colleges of Further Education and of Art at Clarence Place, Bolt Street and Artillery Place, and £92,735 for the construction of a new occupation centre and maternity and child welfare clinic at Malpas (Westfield).

Nottingham.—Sheffield Regional Hospital Board recommended to approve modernisation plans at General Hospital. Scheme includes new multi-storey block on the Postern Street site.

Onchan, I. of M.—B.C. preparing plans for additional grandstand accommodation at the Stadium.

Pulborough, Sussex.—Parish Council to invite tenders for the provision of a pavilion at the playing field.

Radcliffe, Lancs.—C.C. have submitted to the Home Office, for inclusion in the County's five-year programme, 1960-65, scheme for provision of new police station in the town centre.

Rainford, Lancs.—U.D.C. have approved modernisation of 14 houses in Ormskirk Road. Estimated cost £3,020.

Redcar, Yorks.—B.C. to erect a shopping centre comprising 24 shops with maisonnettes above in connection with the Lakes housing project. There will also be a public house, library, housing office, clinic and community hall. Plans are by Frederick Gibberd, 8 Percy Street, London, W.1.

St. Marylebone.—L.C.C. planning permission is being sought for a multi-storey car park, service station, commercial space and flats in an 11-storey building at 155-171 Great Titchfield Street, 1-4 Greenwell Street, 30-40 Bolsover Street and 28-30 Carburton Street for Amberley Investments, Ltd.

St. Pancras.—L.C.C. planning permission is being sought for a central library, assembly hall, offices, garage, public-house and sub-station in a 16-storey building between Euston Road, Chilton Street, Weirs Passage and Ossulston Street, for which the architects are Devereux and Davies, 3 Gower Street, W.C.1.

South Shields, Dur.—Mary Harris, Ltd., Team Valley Estate, Gateshead, are to carry out extensions to their works at John Clay Street. Plans are being prepared by Waring and Netts, 36 Jesmond Road, Newcastle upon Tyne.

Solihull, War.—E.C. are preparing preliminary drawings for the erection of two new schools in the Shirley area.

Stratford-upon-Avon, War.—B.C. recommended to prepare scheme for the provision of public conveniences at Shotton.

Stroud, Glos.—U.D.C. have approved modified plans and are to obtain tenders for the erection of a central depot at London Road. Estimated cost £9,692.

Sunderland, Dur.—B.C. to obtain tenders for the erection of students' union and hostel block at South Johnson Street.

Fennell and Baddiley, Bridge End Chambers, Chester-le-Street, have prepared plans for factory extensions at Pallion for the Indus-

and Estates Corporation of England, Team Valley, Gateshead.

B.C. have approved in principle proposals for erection of new civic centre on a 16-acre site in West and Mowbray Parks.

Sunderland, Dur.—Outline plans have been approved for alterations to provide shops and offices at Holmside for the Pearl Assurance Co., Ltd. (plans by W. S. H. Julian, 252 High Holborn, London, W.C.1); extensions proposed to engineering works at St. Marks Road, Millfield, for R. Powley and Sons, Ltd. (S. W. Milburn and Partners, architects, 9 Esplanade, Sunderland); G. T. Brown and Son, 14 Grange Terrace, Stockton Road, are the architects for a carpet cleaning dept. at Back Rosslyn Street, for the Northern Laundry, Ltd.

Sutton and Cheam, Surrey.—Town and Country Planning Committee have approved sketch plans for a proposed industrial estate at rear of Sutton sewage farm.

Whitley Bay, Northumb.—C. Solomon, 30 St. Mary's Place, Newcastle upon Tyne, prepared plans for bank and three flats in Front Street.

County Architect has prepared plan for child welfare centre, Whitley Lodge estate.

Wigan, Lancs.—County Planning Committee have approved an outline application by the R.D.C. for erection of shops in Gathurst Lane, Shevington.

R.D.C. to apply for planning approval for erection of new garage and depot on part of housing site off Miles Lane, Shevington.

Windsor, Berks.—Licensing Magistrates have approved plans for improvements to Castle Hotel, for Trust Houses, Ltd., Drury Lane, London, W.C.1.

York.—Leeds Regional Hospital Board have approved proposal to erect a new hospital of about 500 beds on the Bootham site.

ELECTRICAL

Scarborough, Yorks.—B.C. recommended to apply for sanction to borrow £6,000 for re-wiring of electrical installation in 170 houses on the Northstead estate.

GAS AND WATER SUPPLY

Aled, Denbighs.—R.D.C. to proceed with scheme for the provision of a water supply in the Llansannan area. Estimated cost £14,000.

Bridlington, Yorks.—Waterworks Committee plan to proceed with scheme for water supply to an area to the north-east of Bempton Village. Estimated cost £6,900.

Chippenhams, Wilts.—B.C. recommended to prepare scheme for the erection of buildings to house new booster pump and the provision of additional filters at Ivyfields waterworks.

Sheffield.—City Council recommended to approve water mains extensions. Estimated cost £2,345.

HEATING AND VENTILATING

Wigan, Lancs.—B.C. to apply for sanction to borrow £1,756 for adaptations to heating systems of Beech Hill and Gidlow Schools.

HOUSING SCHEMES

Abram, Lancs.—U.D.C. have approved plans for erection of six bungalows at Lily Lane for Speakman and Jones, 51 Severn Drive, Ashton.

Alfreton, Derbys.—U.D.C. are preparing plans for the erection of 20 old people's bungalows on the site of the Miners' Hostel, Nottingham Road.

Bexley, Kent.—Ministry have approved plans for 44 bungalows at Riverdale Road for A. Beaumont, Ltd., 20 Crook Log, Bexleyheath.

Braughing, Essex.—Ministry have approved plans for the erection of 10 old people's bungalows at High Wych, for R.D.C.

Buckingham.—B.C. have purchased land at Stratford Road for housing purposes.

Burton-upon-Trent, Staffs.—B.C. recommended to invite tenders for the construction of roads and sewers and erection of 16 dwellings and three garages at rear of Ashby Road.

Chanctonbury, Sussex.—R.D.C. to invite tenders for the erection of 12 old people's flats at Thakeham Road, Sullington, and a further 24 flats and three bungalows at Middle Mead, Steyning.

Chippenhams, Wilts.—B.C. recommended to approve in principle layout plans for the erection of 21 units of old people's accommodation at rear of Factory Lane and 23 at rear of 45 St. Mary Street.

Colchester, Essex.—Standing Joint Committee propose the erection of three pairs of police houses at Sutton Park Avenue, Orchard estate.

Crewe, Ches.—B.C. propose the erection of 64 houses at Middlewich Street estate; to submit to Ministry, for approval in principle, plans for 12 single and four double old people's flats at Elm Drive.

Darlington, Dur.—Sanderson, Townend and Gilbert, 92 Bondgate, acting on behalf of C. W. Jackson, are planning residential developments at Mowden. It is understood

that the scheme provides for a total of 1,380 dwellings.

Dawley, Salop.—U.D.C. to prepare preliminary layout for the erection of dwellings at Langley Farm estate.

Doncaster, Yorks.—R.D.C. recommended to approve estate plans for 50 houses at Stripe Road, Rossington, and 134 houses at Campsall Park, Norton.

Planning permission granted for the erection of 21 old people's bungalows on the site of an old allotment at rear of the Isolation Hospital, Balby, for B.C.

Durham.—C.C. to build five standard police houses at Whickham Street, Easington Colliery.

Easington, Dur.—R.D.C. have approved the erection of 50 aged persons' dwellings at Peterlee.

Elham, Kent.—R.D.C. have approved plans for the erection of 10 dwellings at Swan Lane for E. Charlier and Sons, Ltd., New Road, Saltwood, Hythe, Kent.

Halstead, Essex.—U.D.C. have approved in principle plans for the erection of 107 houses (39 with garages) and a block of 48 garages at Conies Farm housing site and 26 houses at Parkfields estate.

Hastings, Sussex.—B.C. recommended to approve outline application for the erection of three blocks containing 18 flats adjacent to 12 Combermere Road, for Paulivia, Ltd. Ronald Salmon and Partners, architects, 2a Vicarage Gardens, London, W.8.

Heddon, Northumb.—George Bainbridge, Ltd., 205 Westgate Road, Newcastle upon Tyne, are to erect houses on the Heddon village estate.

Liverpool.—City Council propose the erection of 47 houses, 57 two- and three-storey flats, and 58 four-storey maisonnettes on the Childwall Valley estate; 34 houses, 30 three-storey flats and 26 lock-up garages in Long Lane and Higher Lane, Fazakerley; eight shops, 16 flats, 38 maisonnettes and 12 lock-up garages in Latimer Street; four shops, eight flats and 16 maisonnettes in Warwick Street; 12 maisonnettes in four storeys in Branker Street, Dingle; three houses and nine flats in Mill Street.

Llandudno, Caerns.—U.D.C. have submitted to County Planning Authority and Ministry for approval plans for the erection of 108 dwellings and shops at Tre Cwm housing estate.

Merthyr Tydfil, Glam.—B.C. have submitted to Ministry for approval plans for the erection of 88 houses at Vicar's Field, Troedrhwi.

Saddleworth, Yorks.—West Riding C.C. have approved for submission to the Ministry, plan to build old people's bungalows on the old fairground site at Wade Row, Uppermill. Estimated cost £34,000.

Salford, Lancs.—Housing Committee have invited Cruikshank and Seward, 196 Deansgate, Manchester, 3, to prepare plans for erection of luxury flats on both sides of Bury New Road, Higher Broughton.

Sheffield.—City Council recommended to appoint Holdsworth and Cousins, 49 Spring Hill Road, Sheffield, 10, quantity surveyors for housing development on an in-filling site at East Bank Road.

Skipton, Yorks.—R.D.C. have granted conditional planning consent for erection of 13 pairs of semi-detached houses adjoining Craven Vale Terrace, Colne Road, Glusburn, for C. and R. Properties (Bradford), Ltd., Bradford.

Southwell, Notts.—R.D.C. have approved plans for the erection of a further 190 houses at Walesbylane, New Olterton.

Stanley, Dur.—Eltringham and Lowes, Derwent Street, Blackhill, prepared plans for 13 bungalows at Dipton for W. and B. Millhouse, Herbert Street, Consett.

Stockport, Ches.—B.C. recommended to approve plans and invite tenders for the erection of 62 dwellings and 13 garages at Canal Bridge Farm estate, stage 2 (contract 7); scheme for a block of four aged persons' flats with estates office attached at junction of Stockport Road and Hoylake Road; layout plans for 20 aged persons' dwellings at Alexandra Road.

Sunderland, Dur.—B.C. to purchase 20 acres of land for extensions to North Hylton Road trading estate. The Corporation is planning the erection of 11-storey flats in the development areas. It is also proposed to purchase more than 200 acres of land for housing purposes at Usworth Aerodrome.

Whitley Bay, Northumb.—I. V. Spencer, 171 Albert Road, Middlesbrough, have prepared plans for 27 dwellings at Haddon Green.

Wigan, Lancs.—B.C. have approved the erection of an 11-storey block of flats in Douglas Street and 12 houses at Marsh Green.

Wigton, Cumb.—R.D.C. to ask North-Eastern Housing Association to acquire land next to Longhead Lane, with a view to completing the Western Bank estate.

Windermerre, Westmor.—Ministry have granted permission to Lakeland Buildings, Ltd., Woodcroft, to erect a three-storey block of 12 flats and a single-storey block of 12 garages at Mylnbeck Lake Road.

PLAYING FIELDS, PARKS, ETC.

Brighton, Sussex.—B.C. to prepare 3-stage plan for provision of playing fields at Woodingean. Estimated cost £31,000.

Chippenhams, Wilts.—B.C. to prepare scheme for the provision of sports facilities, footpaths, lavatory accommodation and a footbridge across the river in the vicinity of 45 St. Mary Street, Monkton Park. Estimated cost £10,000.

Sheffield.—City Council recommended to authorise Parks Department to carry out landscaping works for the Park Hill redevelopment area (stage 2, part 2). Estimated cost £19,580.

RIVER AND FLOOD PREVENTION WORKS

Newport, Mon.—B.C. recommended to apply for sanction to borrow £117,812 for flood prevention works at the Bettws neighbourhood unit.

ROADS, BRIDGES AND SITE WORKS

Barnet, Herts.—U.D.C. are to purchase land between Bruce Road and Salisbury Road for the provision of a car park.

Barnsley, Yorks.—Borough Engineer to prepare scheme for widening of Doncaster Road from Stairfoot crossroads to Borough boundary, for submission to the M.T. in due course for approval in principle. Estimated cost £259,600.

Boston, Lincs.—B.C. to submit to M.T. for approval detailed scheme for the improvement of South Street. Estimated cost £27,000.

Groby, Leics.—Parish Council have approved layout plan for the proposed new cemetery in Anstey Lane, with an additional car park.

Lancashire.—County Highways Committee have approved plans for a new road to serve the Ford factory at Halewood, subject to grant from Ministry. Road will form first section of the proposed Speke-Widnes road and will cost about £140,000.

Newport, Mon.—B.C. recommended to proceed with the resurfacing of the north west side of the central car park and the provision of surface water drainage at the Kingsway side of the park. Estimated cost £1,000.

B.C. recommended to approve in principle scheme for the construction of the George Street bridge and to promote a Parliamentary Bill in due course. Estimated cost £1m.

Plymouth.—City Council to prepare plans for the construction of the city outer ring road.

Salisbury, Wilt.—B.C. recommended to approve plans and invite tenders for the making-up of St. George's Road, Long View Road and St. Anne's Road; prepare plans for the widening of Station Road between Church House and Albert Road.

Yarmouth, Norfolk.—B.C. have approved plan for the widening of Southtown Road, between Haven Bridge and Southtown Station; to prepare report on the provision of a subway for Cliff Park School, Gorleston.

Wrexham, Denbighs.—B.C. recommended to approve scheme for the widening of York Street.

SEWERAGE, SEWAGE AND REFUSE DISPOSAL

Beverley, Yorks.—R.D.C. have approved, in principle, sewerage schemes for Bishop Burton and Cherry Burton, estimated cost £55,300, and sewerage scheme for Etton, Lockington and Lund.

Darlington, Dur.—Ministry have approved, in principle, R.D.C.'s plans for sewerage scheme for Hurworth and Neasham.

Golborne, Lancs.—U.D.C. Surveyor has been instructed to prepare a detailed scheme for improvement of the Glazebury sewage disposal works and to inform the Mersey River Board of this project.

Guisborough, Yorks.—U.D.C. seeking planning permission to erect sewage disposal works at Mount Pleasant.

Kington, Heres.—R.D.C. have approved sewerage schemes for Lvonshall, Pembridge, and Eardisley. Estimated cost £65,275.

Liverpool.—City Council recommended to apply for sanction to borrow £16,055 for reconstruction of sewers in Aigburth Road/Alexandra Drive (on site of new flats in course of erection), passage between Onslow Road and Grove Road (off Prescott Road), Balmoral Road, Hamstead Road to Carstairs Road (off Prescott Road), passage between St. Andrews Road and Westcott Road (off Breck Road), passage between Dacy Road and St. Domingo Grove (off Breckfield Road North) and in passage between Orient Street and Priory Street (off Heyworth Street), and £5,421 for construction of two lengths of sewer in Menlove Avenue.

Newquay, Corn.—Ministry have approved plans for the construction of the two final stages of the U.D.C.'s sewerage scheme for the district.

Sheffield.—City Engineer has been authorised to carry out replacement of a defective sewer

in Middlewood Road, between Dykes Hall Road and Leader Road. Estimated cost £4,650.

Strood, Kent.—R.D.C. have approved an extension to Higham and Shorne sewerage scheme, to serve 11 dwellings at Walmers Avenue, Higham. Estimated cost £750.

Wigan, Lancs.—R.D.C. to ask Charles J. Lomax and Son, consulting engineers, 67 Barton Arcade, Manchester, 2, to prepare a preliminary report with a view to proceeding with sewerage and sewage disposal scheme for the Appley Bridge area of the Parish of Warrington.

STREET LIGHTING

Halstead, Essex.—U.D.C. have approved scheme and are to invite tenders for the installation of fluorescent lighting at Braintree Road to the Sudbury Road, stretching from the town's boundary in both directions, and from the Hedingham Road to the Colchester Road, from the boundaries.

Woolburn, Bucks.—Parish Council to apply for sanction to borrow £8,400 for installation of major lighting scheme into the area.

CONTRACTS

Full details of the Contracts marked * will be found in our Advertisement Columns.

BUILDING AND DECORATING

(See also Housing Schemes)

Aldridge, Staffs.—Erection of public conveniences on sites fronting Croft Parade, Aldridge, and Hillingford Avenue, Pheasey, for U.D.C. Documents from James Mason, engineer and surveyor, 9 Leighwood Road, Aldridge. Deposit £2 2s. Drawings seen at the Surveyor's office by appointment. Tenders by Sept. 27.

Armagh.—(a) Structural steelwork, (b) metal windows and metal rooflights for Keady County Secondary Intermediate School for C.C. Documents from Hobart and Herrom, architects, 120 Scottish Provident Buildings, Donegal Square West, Belfast, 1. Deposit £5 5s. each set documents. Tenders by Oct. 10.

Batley, Yorks.—Supply and delivery of fireplaces, cupboards, and ironmongery in connection with the erection of 26 dwellings at Staincliffe estate and Middlegate, Birstall, for B.C. Documents from the Borough Engineer, West House, Hanover Street, Batley. Tenders by Sept. 30.

Belfast.—Reinforced concrete piling at College of Art for City Council. Documents from Education Architect's Department, 40 Academy Street, Belfast, 1. Tenders by Oct. 6.

Belfast.—Repairs to chimney at Chemical Works, Bond Street, for City Council. Documents from the Gas Works, Ormeau Road, Belfast, 7. Tenders by Sept. 29.

Beverley, Yorks.—Following for R.D.C.: (a) (Contract 449) Four traditional-type houses at Newbald; (b) (461) provision of bathrooms, w.c.s, sinks, drainage, etc., to 12 houses at Lund, Cherry Burton and Woodmansey; (c) (462) provision of bathrooms, w.c.s, sinks, drainage, etc., to 19 houses at Little Weighton, Skidby and Swanland; (d) (465) provision of bathrooms, w.c.s, sinks, drainage, etc., to four houses at Newbald; (e) (464) additional electrical installations to 39 houses at Newbald, Wawne, Lund, Cherry Burton, Woodmansey, Little Weighton, Skidby and Swanland. Documents for each of the contracts from G. Palfreyman, architect and surveyor, 22 Laigate, Beverley. Deposit £1 1s., cheque payable to Council. Tenders by Oct. 18.

Birmingham.—Erection of messrooms at various parks and recreation grounds for City Council. Application to the General Manager, Parks Department, Civic Centre, Broad Street, Birmingham, 1, by Oct. 7. Deposit £2 2s. Tenders by Oct. 28.

Buckinghamshire.—Proposed new sanitary accommodation, canteen kitchen, demolition of old offices, etc., at Whitehill County Junior School, Chesham, for C.C. Applications immediately to the County Architect, County Offices, Aylesbury. Bills of quantities, etc., will be available Oct. 7. Deposit £3 3s. Tenders by Oct. 31.

Buckinghamshire.—Aylesbury College of Further Education and Aylesbury Technical School, cost in the region of £400,000, for C.C. Applications immediately to the County Architect, County Offices, Aylesbury. Bills of quantities, etc., will be available Sept. 30. Deposit £3 3s. Tenders by Oct. 31.

Bullington, Oxon.—Erection of a public convenience at Littlemore for R.D.C. Applications to the Council's Engineer and Surveyor, 76 Banbury Road, Oxford, by Oct. 10.

Canterbury.—Erection of a stores building, additions to existing building and fuel store, sub-structure for erection of plant houses and frames at the Horticultural Nursery at Honor Oak Park, S.E.25, for B.C. Documents from

the Borough Engineer, Town Hall, S.E.5. Deposit £2 2s. Tenders by Oct. 19.

Camelford, Corn.—Improvements and modernisation of two bungalows at Cambeak, Boscastle, for R.D.C. Documents from R. Haylett, surveyor, Council Office, Camelford. Tenders by Oct. 25.

Castlereagh, Down.—Conversions and improvements to 14 cottages at Seahill, and six cottages on the Helen's Bay Road, Craigavad, for R.D.C. Documents from the Council Offices, 368 Cregagh Road, Belfast, 6. Deposit £3. Tenders by Oct. 5.

Cemaes, Cards.—Repairs and alterations at 1 Union Terrace, St. Dogmaels, for R.D.C. Documents from Howard Williams and Partners, architects, Cardigan. Deposit £1 1s. Tenders by Sept. 29.

Chester.—Erection of 36 brick garages at Blacon estate and 17 at Newton Hall estate for City Council. Documents from the City Engineer and Surveyor's Department, 49 Northgate Street, Chester. Tenders by Oct. 3.

***Colchester, Essex.**—Erection of administration block, Shrub End refuse tip, for B.C. Applications by Oct. 1. Deposit £2 2s. Tenders by Oct. 18.

Congleton, Ches.—Installation of washhand basins in 141 houses on various sites for R.D.C. Documents from the Engineer and Surveyor, Middlewich Road, Sandbach. Tenders by Oct. 5.

Crosby, Lancs.—Building work in connection with the installation by a specialised contractor of oil-fired central heating to the headquarters building and ancillary accommodation, together with alterations and additions, to the existing buildings of Civil Defence headquarters, College Road, for B.C. Documents from the Borough Engineer and Surveyor, Town Hall, Waterloo, Liverpool, 22. Deposit £2 2s. Tenders by Oct. 4.

Dewsbury, Yorks.—Renewal of the patent glazing to the roof of the police garage for B.C. Documents from the office of the Borough Architect and Buildings Surveyor, Town Hall, Dewsbury. Tenders by Oct. 10.

Down.—Erection of an extension to Derryboy Primary School for C.C. Documents from the Education Committee, 1 Wellington Place, Belfast, 1. Deposit £3. Tenders by Oct. 19.

Durham.—Following for C.C.: Bishop Auckland Aclat Close Nursery School—adaptations; Bishop Auckland King James I Boys' Grammar School—installation of clock and bell systems; Brownley County School—renewal of wood floors; Durham Johnston Grammar Technical School—(a) conversion of drawing office into a workshop; (b) provision of concrete terracing to running track; Hebburn Quay County School—renewal of wood floors; High Spen County School—renewing corridor and cloakroom floors with terrazzo floor tiles; Oxhill County School—renewal of wood floors; Shield Row Girls' Modern School—renewal of wood floors; Stockton-Billingham Technical College—(a) renewal of wood floors to Nelson Terrace premises; (b) Billingham premises—providing special benches in science department. Application to County Architect, South Street, Durham, by Sept. 28.

Durham.—Following for C.C.: Ushaw Moor County School—additional sanitary accommodation and improvements to cloakrooms and canteen scullery; Waterhouses County School—improvements to sanitation, renewal of floors, provision of heating and improvements to ventilation; Ryhope Robert Richardson Grammar School—(a) heating and D.H.W. installations, (b) metal windows, (c) tarmacadam pavings; Swalewell New Fire Station, A.F.S. garage and station, officer's bungalow—(a) erection, (b) heating installation. Application to County Architect, South Street, Durham, by Sept. 28.

East Kesteven.—Modernisation of 392 pre-war Council houses for R.D.C. The work includes minor structural alterations, the provision of hot water supplies and other plumbing work, and the provision of additional electric power and lighting points. The work will be divided into approx. six equal contracts, as follows, and contractors may submit tenders for all or any of these contracts: (1) Seventy-two houses—Ruskington and Anwick; (2) 79 houses—Ashby, Blankney Fen, etc.; (3) 66 houses—Great Hale and Heckington; (4) 72 houses—Aunsby, Burton Pedwardine, etc.; (5) 75 houses—Billinghay and North Kym; (6) 28 houses—Cranwell, Leasingham and Wilsford. Documents from the Council's Architect, Council Offices, Northgate, Skefford, Tenders by Oct. 8.

East Riding.—Erection of three-bay Dutch barn with three-bay lean-to on a smallholding at Wiltshorpe, near Bridlington, for C.C. Documents from the County Land Agent, County Hall, Beverley. Tenders by Sept. 28.

***Edmonton, Middx.**—Erection of library and clinic at junction of Church Street and Ridge Avenue for B.C. Applications by first post, Sept. 28. Deposit £2 2s. Tenders by Oct. 18.

Edinburgh.—Alterations to public convenience at Granton Square for City Council. Documents from the Engineer and Manager,

Lighting and Cleansing Department, 329 High Street, Edinburgh. Tenders by Oct. 4.

Essex.—Following works for C.C.: (1) Harold Court Hospital, near Harold Wood, teachers' training college, minor alterations, repairs and internal decorations (works based on specification and drawings, estimated cost £3,500); (2) Civil Defence centre, Waltham Abbey (in traditional construction, estimated cost £5,500); (3) Grays police station, alterations (estimated cost £4,500, specification and drawings available mid-October, 1960). Separate applications for each contract to H. Conolly, county architect, County Hall, Chelmsford, by Sept. 24.

Frome, Som.—Painting of 22 Cornish unit houses at following sites for U.D.C.: Rossiter's Hill, six; Longleat Close, 10; Asylum Lane, four. Documents from the Engineer and Surveyor, Municipal Offices, North Parade, Frome. Deposit £1 1s. Tenders by Sept. 30.

Gelligaer, Glam.—Conversion into flats of "Arybryn," Pontlotyn, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Hengoed. Deposit £2 2s. Tenders by Sept. 30.

Great Yarmouth, Norfolk.—Provision of bathrooms and hot water systems to Wood Farm Cottages 1, 2, 3 and 4 and Greenacre Cottages 3 and 4 Wood Farm Lane, Gorleston, for B.C. Documents from the Borough Engineer's Office, Town Hall. Tenders by Oct. 4.

Hereford.—Internal painting works at the General Hospital for the Herefordshire Hospital Management Committee. Documents from A. D. Edmunds, group secretary, Victoria House, Eign Street, Hereford. Tenders by Oct. 3.

Horsforth, Yorks.—Alterations and additions to the present Council Offices for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Manor Road, Horsforth. Deposit £2 2s. Tenders by Oct. 7.

Inverness-shire.—Painterwork on police properties in Inverness Burgh and Inverness and Aird Districts for C.C. Documents from the District Clerk of Works, The Castle, Inverness.

Irlam, Lancs.—Construction of public conveniences at Liverpool Road for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Irlam. Deposit £1 1s. Tenders by Oct. 8.

Isle of Tiree.—Erection of a Manse and Glebe land in Gott for the Kirk Session of Tiree Church of Scotland; Builder and excavator; plumber and electrician; carpenter and joiner; painter and glazier; slater and plasterer. Offers for sole contract and individual tenders will be received. Documents from R. Mackinnon, Comaig beg, Tiree.

Kesteven.—Extensions to Aulbourn County Primary School for C.C. Submit names to the County Architect, County Offices, Skefford, Lincs., by Sept. 27. Tenders by Oct. 21.

Kirkcaldy, Fifies.—Erection of a public convenience at Cairns Street for B.C. Documents from Galbraith and Lawson, quantity surveyors, 113 High Street, Kirkcaldy. Tenders by Oct. 10.

Lancashire.—Erection of classroom block, kitchen, and dining-room at Darwen Grammar School, for C.C. Work is in traditional construction, with timber wall panels and felted flat and pitched roofs, and includes services, drainage, site works, and adaptations to existing buildings. Applications to the County Architect, P.O. Box 26, County Hall, Preston, by Sept. 26.

Littleport, Cambs.—Construction of a swimming pool, including filtration and chlorination plant, cubicles, conveniences, etc., at Parson's Lane, for Parish Council. Documents from A. E. King, architect, 1a Lynn Road, Ely, Cambs. Tenders by Oct. 8.

Martley, Worcs.—Modernisation of eight houses at Ridley's Cross, Astley, and six houses at Beehive, Abberley, for R.D.C. The work consists of internal alteration to provide a bathroom and w.c., together with plumbing work and connections to existing drainage. Documents from the Surveyor, 1 The Tything, Worcester. Tenders by Oct. 10.

Middleton, Lancs.—Erection of a branch library of some 3,000 sq. ft. floor area at Windermere Road for B.C. Documents from the Borough Surveyor, Town Hall, Middleton. Deposit £2 2s. Drawings seen at the Architect's Department, Town Hall, between 9 a.m. and 5.30 p.m. Tenders by Oct. 7.

Morpeth, Northumb.—Following for B.C.: Erection of garden walls, fencing, paving and miscellaneous works at (1) Castle Close; (2) Church Walk, Postern Crescent and West Park; (3) Sanderson Gardens; (4) Duncan Gardens; (5) Baysland. Documents from the Borough Engineer's Office, 36 Bridge Street, Morpeth. Deposit £2 2s. Tenders by Oct. 8.

Northampton.—Erection of a prefabricated timber annexe to the art block and improvements to a science laboratory at Delapre Secondary Modern School, Rothersthorpe Road, for E.C. Apply to the Borough Architect, Guildhall, Northampton, by Sept. 24.

Newcastle upon Tyne.—Erection of a welfare centre, with two flats above, at Fenham

Hall Drive, Fenham, for City Council. Application, in writing, to Ryder and Yates, architects, Churchill House, 87 Jesmond Road, Newcastle upon Tyne. Tenders by Oct. 5.

Norfolk.—Following for C.C.: Costessey Infants' County Primary School—new classrooms (1,900 sq. ft.); Eden Hall Special School, Bacton—new classrooms and alteration (1,950 sq. ft.); Wells-next-Sea New Secondary Modern School—first installment (1,450 sq. ft.). Builders wishing to be considered for inclusion in selected panels of tenderers should forward their names to F. Lincoln Ralphs, chief education officer, County Education Offices, Stracey Road, Norwich, by Sept. 28.

Northampton, Devon.—Erection of seven garages at Tomouth Crescent, Appledore, for U.D.C. Details from the Surveyor to the Council at the Council Offices, Northampton. Tenders by Oct. 5.

Nottingham.—Construction of a police operational centre at Queens Drive for City Council. Documents from H. McD. Lawson, acting city engineer and surveyor, The Guildhall, Nottingham. Deposit £2. Tenders by Oct. 11.

Nuneaton, War.—Erection of 57 garages at Wood Farm housing estate for B.C. Documents from the Borough Surveyor, Council House, Nuneaton. Deposit £2 2s. Tenders by Oct. 10.

Plymouth.—Erection of a combined clinic at Peel Street, Stonehouse, for City Council. Applications to the City Architect, Seymour Road, Plymouth, by Sept. 28. Deposit £3 3s., payable to Plymouth Corporation.

Portsmouth.—Following for City Council: (a) Milton Modern School for Girls—remodelling two domestic science rooms; (b) Southsea Modern School for Girls—remodelling of domestic science room. Contractors should apply to the City Architect, 1 Western Parade, Portsmouth, by Sept. 26, stating in which contract(s) they are interested. Deposit £1 each contract. It is a condition of tendering that the contractor shall, at the date of his tender, have in his employment not less than one indentured apprentice to every eight craftsmen who were employed by him on the previous Jan. 1.

Portsmouth.—Completion and reconstruction of Anglesea Road swimming baths for City Council. Apply to the City Architect, 1 Western Parade, Portsmouth, by Sept. 26. Deposit £1. It is a condition of tendering that the contractor shall, at the date of his tender, have in his employment not less than one indentured apprentice to every eight craftsmen who were employed by him on the previous Jan. 1.

Reading, Berks.—Erection of public conveniences, Arthur Newbery Park, Armour Hill, for B.C. Documents from the Borough Architect, Town Hall, Reading. Tenders by Oct. 10.

Reading, Berks.—Alteration work to the pavilion and ancillary works at Coley Recreation Ground, St. Saviour's Road, for B.C. Documents from the Borough Architect, Town Hall, Reading. Tenders by Oct. 10.

Ruislip-Northwood, Middx.—Construction of a public convenience at Ruislip Lido for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Northwood. Deposit £2 2s. Tenders by Oct. 12.

Southend-on-Sea, Essex.—Lavatory extensions, Bournemouth Park Road Primary Schools for B.C. The contract comprises the erection of three single-storey toilet blocks, abutting existing buildings of a total floor area of about 1,200 super. ft. of brick construction and timber flat roofs, demolition of existing lavatories and works incidental thereto. Submit names to the Borough Architect, 30 Alexandra Street, Southend-on-Sea, by Oct. 5, accompanied by details of similar works previously undertaken and names of architects from whom references may be obtained. From such applications a selected list of tenderers will be made by the Committee, and those selected will be notified and will be required to make a payment of a deposit of £2. Upon receipt of this deposit, the bills of quantities and form of tender will be forwarded, and it is anticipated that these will be available early Nov., 1960.

Stepney.—Supply and erection of a prefabricated structure on the roof of the Municipal Offices, 227-233 Commercial Road, E.1, for B.C. Structure intended as accommodation for staff amenities. Approx. overall dimensions 40ft. by 50ft. by 8ft. Documents from the Borough Engineer and Surveyor at the Municipal Offices. Tenders by Oct. 31.

Stourbridge, Worcs.—Approximately 3,000 lin. yd. of dwarf walling built in concrete walling blocks and bricks on various council housing estates, for B.C. Documents from H. W. Morris, borough engineer and surveyor, Council House, Stourbridge. Deposit £2 2s. Tenders by Oct. 10.

Sunbury-on-Thames, Middx.—Internal redecorations in about 30 houses at Beechwood Avenue and Keywood Drive, Sunbury, and about 17 houses and bungalows at Norman

Road and Tudor Road, Ashford Common, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Sunbury-on-Thames.

Sunderland, Dur.—Erection of one block of eight garages at Radlett Road, Hylton Red House Estate, for B.C. Documents from Borough Architect, Grange House, Stockton Road, Sunderland. Tenders by Oct. 17.

Sunderland, Dur.—Conversion of classroom to dining room and scullery at Bishopwearmouth C. of E. School for B.C. Documents from the Borough Architect, Grange House, Stockton Road, Sunderland. Tenders by Oct. 7.

Surrey.—Proposed Rivermead County Secondary School at Richmond Road, Kingston-upon-Thames, for C.C. Work consists of the erection of part steel-framed, part reinforced-concrete framed buildings in one-, two- and three-storeys to provide classrooms, assembly hall, kitchen and dining hall, etc., together with adaptation to the existing primary school buildings to provide laboratory wing to cost about £250,000. Documents will be available about Oct. 11, contract period proposed is 88 weeks. Apply to the County Architect, County Hall, Kingston-upon-Thames, by Sept. 27.

Wallasey, Ches.—Erection of a police sub-station at Leasowe Common, Leasowe Road, for B.C. Documents from the Borough Architect, Town Hall, Wallasey. Tenders by Oct. 12.

Watford, Herts.—Decorating and building works at public baths for B.C. Applications by Sept. 26. Deposit £2 2s.

West Riding.—Erection of new garage accommodation and toilets at the County Ambulance Station, Westroyd House, Farsley, Pudsey, for C.C. Applications to the County Architect, Bishopgarth, Westfield Road, Wakefield, by Sept. 26. Tenders by Oct. 24.

West Riding.—Demolition of old toilets and erection of new toilets and renewal of drainage at Wombwell Secondary School for C.C. Applications to the Divisional Architect, Bishopgarth, Westfield Road, Wakefield, by Oct. 3. Tenders by Oct. 17.

West Riding.—Demolition of existing toilet block and erection of new toilet accommodation and stores at Pontefract Love Lane Infants' School for C.C. Applications to the Divisional Architect, Bishopgarth, Westfield Road, Wakefield, by Oct. 3. Tenders by Oct. 31.

West Riding.—Following for C.C.: (1) Askern Secondary School, Askern, near Doncaster—extensive minor repairs prior to painting; (2) Moss and Fenwick School, Moss, near Doncaster—roof repairs. Documents from the Divisional Education Officer, County Area Offices, Station Road, Doncaster. Tenders by Sept. 30.

West Riding.—Adaptation for Further Education and Youth purposes at Wombwell Park Street Infants' School for C.C. Documents from the Divisional Architect, Bishopgarth, Westfield Road, Wakefield. Tenders by Oct. 3.

Workshop, Notts.—Whole or part of the work for repainting of approximately 100 houses and bungalows, principally at Carlton-in-Lindrick and Harworth, for R.D.C. Documents from C. J. Phillips, surveyor, Highfield House, 222 Carlton Road, Workshop. Tenders by Oct. 3.

CLOTHING AND TEXTILES

***Bolton, Lancs.**—Supply of uniform clothing for B.C. Tenders by Oct. 7.

Blackburn, Lancs.—Supply of the following clothing for B.C.: 380 blue overall jackets—quality X3111/2; 380 blue overall trousers, bib and brace—quality X3111/2. Samples and further particulars from Cleansing Depot, Stansfield Street. Tenders by Oct. 3.

Bradford, Yorks.—Supply of police uniform clothing for City Council: Helmets and caps; boots and shoes; repairs to boots and shoes; shirts, collars and ties; woollen, cotton and leather gloves; waterproof coats and leggings; stockings for policemen. Documents from the Chief Constable, Town Hall, Bradford. Tenders by Oct. 1.

Dewsbury, Yorks.—Supply of shirts, collars and ties for B.C. Documents from the Chief Fire Officer, Longcaseway, Dewsbury. Tenders by Oct. 1.

Gloucestershire.—Supply of police uniform, including caps, helmets, shirts, collars and ties, for the year ending Dec. 31, 1961, for County Constabulary. Documents from the Chief Constable, Police Headquarters, Holland House, Lansdown Road, Cheltenham. Tenders by Nov. 7.

DEMOLITION

Brighouse, Yorks.—Demolition of twenty-two stone-built houses at New Street and New Street Place for B.C. Documents from the Borough Engineer, Commercial Street, Brighouse. Tenders by Oct. 21.

Chelmsford, Essex.—Demolition of 197 London Road for B.C. Works include the

complete demolition of a two-storey house and various reinstatement works. Documents from the Borough Engineer and Surveyor, Municipal Offices, Coval Lane, Chelmsford. The house may be inspected by arrangement with the Borough Engineer. Tenders by Oct. 3.

Chester.—Demolition of a number of large three-storey town houses and business premises in connection with the widening of Pepper Street for City Council. Documents from the City Engineer and Surveyor, 49 Northgate Street, Chester. Tenders by Oct. 7.

Down.—Demolition of Dromore No. 1 (Old) School, situated on the Banbridge Road, Dromore, for C.C. Documents from the offices of the Down Education Committee, 1 Wellington Place, Belfast. Tenders by Sept. 28.

Folkestone, Kent.—Demolition and clearance of the Chapel Battery and Radar sites for B.C. Documents from E. L. Allman, borough engineer, West Terrace, Folkestone. Deposit £2 2s. Tenders by Oct. 14.

Sheffield.—Demolition of approx. 430 dwelling houses, several shops and various workshop and warehouse premises, all situated in stage C of the Netherthorpe redevelopment for City Council. Documents from the Estates Surveyor, Town Hall, Sheffield. Deposit £2 2s., cheques payable to the Order of the Sheffield City Council. Tenders by Oct. 6.

Somerset.—Demolition and removal of materials at the Cottage, Rodney Stoke, for C.C. Documents from the County Surveyor, County Hall, Taunton. Tenders by Oct. 4.

ELECTRICAL

Ilkley, Yorks.—Complete re-wiring of 28 Council houses at Menston for U.D.C. Documents from the Engineer and Surveyor, Chantry Drive, Ilkley. Tenders by Oct. 8.

Peterborough.—Electric lighting and power installations to 98 dwellings on Bluebell estate for City Council. Documents on or after Sept. 28 from the City Engineer, Town Hall. Deposit £2. Tenders by Oct. 12.

FENCING

Bury Port, Cams.—Provision and erection of approximately 200 lin. yd. of unclimbable fence at the Council's sewage disposal works for U.D.C. Documents from J. E. Vaughan Evans, engineer and surveyor, Council Offices, Bury Port. Tenders by Oct. 10.

Coleraine, Londonderry.—Wrought iron railings, gates and balustrading at St. Joseph's Voluntary Intermediate School, Coleraine, for Rev. James P. Close, P.P. Documents from Cormac T. MacLynn, chartered architect, 142 Royal Avenue, Belfast. Deposit £3 3s. Tenders by Sept. 30.

Hemel Hempstead, Herts.—Supply and erection of approx. 1,086yd. of 6ft. high sawn oak close-boarded fencing with precast reinforced concrete posts, including the removal of existing fencing and cartage to the Council's Cupid Green Depot, for B.C. Documents from A. H. Turner, borough and water engineer, High Street, Hemel Hempstead. Tenders by Sept. 30.

Newtownabbey, Antrim.—Supply of unclimbable fencing (6ft. high) for Whiteabbey Hospital for the Northern Ireland Hospital Authority, comprising 280yd. palisading fencing or similar, of rolled steel sections, total weight approx. 95lb. per yard. Particulars from the Secretary, Newtownabbey Hospital Management Committee, Whiteabbey Hospital, Newtownabbey. Tenders by Sept. 27.

Southend-on-Sea, Essex.—Supply and erection of fencing at Shoeburyness High School, chain link on concrete posts, for B.C. Documents from the Borough Architect, 30 Alexandra Street, Southend-on-Sea. Tenders by Oct. 5.

West Riding.—Provision and erection of chain link fencing at Snaith Proposed J. and I. School for C.C. Applications to the Divisional Architect, Planet Road, Adwick-le-Street, near Doncaster. Tenders by Oct. 17.

GAS AND WATER SUPPLY

Amphill, Beds.—Following works at the Harrington Model Village Estate for R.D.C.: (Contract 1) The laying of approx. 380yd. of 4in. diameter and 350yd. of 3in. diameter asbestos-cement watermain; (2) the laying of polythene service connections to approx. 111 dwellings. Documents from the Engineer and Surveyor, "The Limes," 12 Dunstable Street, Amphill. Deposit £2 2s. Tenders by Oct. 12.

Birmingham.—Supply to the Board's Minworth Works of cast-iron pipes and specials for the Birmingham Tame and Rea District Drainage Board. Approx. 1,150yd. of 48in. diameter vertically cast- or spun-iron pipes are required, together with special pipes, and a quantity of other pipes and specials between 9in. and 45in. diameter. Documents from the Engineer to the Board, Rookery Park, Erdington, Birmingham. Tenders by Sept. 30.

Clare, Suffolk.—Works of water supply, comprised in the furnishing and laying of

about 10,000 yd. of 10 in. to 3 in. spun-iron water mains, and other appurtenant works for R.D.C. Contractors, who must have had considerable experience in similar work, and who are desirous of tendering, should send their names and addresses to D. Balfour and Sons, consulting engineers, 131 Victoria Street, Westminster, S.W.1, by Sept. 30. Deposit £5, cheque payable to Council.

***Ogwen, Caerns.**—Pentir and Bryn-y-Waen water mains extension for R.D.C. Deposit £5 5s. Tenders by Oct. 24.

***Stratford-upon-Avon, War.**—Sinking a borehole at Hyon Hill for B.C. Deposit £3. Tenders by Oct. 19.

Wiltshire.—Supply of approx. 1,400 yd. of 12 in. diameter pipes (asbestos-cement or bitumen sheathed cast-iron) and a quantity of pipe fittings to match for the West Wilts. Water Board. Documents from the Engineer and Manager, West Wilts. Water Board, 55 Boreham Road, Warminster. Tenders by Oct. 1.

HEATING AND VENTILATING

Armagh.—Following works at the extension to Annvale Old People's Home, Keady, for County Welfare Committee: (a) Heating and plumbing; (b) electrical installation. Documents from the offices of the architect, George D. Taylor, 27a English Street, Armagh. Deposit £3 3s. each. Tenders by Sept. 29.

Cardiff.—Installation of heating and allied services including sanitary work at the proposed new Teacher Training College, Cyncoed, for City Council. Documents from the City Surveyor, City Hall, Cardiff. Deposit £10 10s., cheques payable to City Council and crossed "Not negotiable and Co." Tenders by Oct. 26.

Leeds.—Provision and installation of steam boiler plant (four separate contracts) for City Council: (1) Cookridge Street Baths, Cookridge Street, Leeds, 1; (2) Union Street Baths, Union Street, Leeds, 1; (3) Kirkstall Road Baths, Kirkstall Road, Leeds, 4; (4) York Road Baths, York Road, Leeds, 9. Documents from the Director of Works, Sweet Street, Leeds, 11. Tenders by Oct. 24.

Sunderland, Dur.—Provision of hot water and additional sanitary accommodation at Plains Farm Junior and Infants' School for B.C. Documents from the Borough Architect, Grange House, Stockton Road, Sunderland. Tenders by Oct. 7.

HOUSING SCHEMES

Aberaeron, Cards.—Housing programme, 1960, for R.D.C. One pair of bungalows at Ystrad Aeron; one pair of bungalows and three pairs of houses at Gylfachrheda; one pair of bungalows and three pairs of houses at Talsarn, submit names, for all or any of the sites, to S. G. D. Evans, clerk of the Council, Council Offices, 1 North Road, Aberaeron, by Sept. 29.

***Bedworth, War.**—Caretaker's bungalow, greenhouses, etc., at Miners Welfare Park, for U.D.C. Deposit £2 2s. Tenders by Oct. 15.

Belfast.—Erection and completion of the following for City Council: (1) Eighteen flats at Carlow Street; (2) three garages at Avoniel Road. Documents from the Housing Architect's Department, 97 Townsend Street, Belfast, 13. Deposit £5 for (1) and £3 for (2) payable to Corporation. Tenders by Oct. 4.

Bexhill, Sussex.—Conversion of 14 Cranfield Road into 11 flatlets to accommodate aged people for B.C. Documents from the Borough Surveyor, Town Hall, Bexhill. Deposit £2 2s. Tenders by Oct. 10.

***Birmingham.**—Contract 709, 27 dwellings Tessa Lane, Egghill Lane estate; contract 718, eight dwellings and one shop, Pool Farm estate, for City Council. Applications by Sept. 27. Deposit £2 2s. each contract. Tenders by Oct. 26.

Bournemouth, Hants.—Following for B.C.: (a) (Contract K.12(c)) Moore Avenue-West Howe Road, site 4, one block of 12 two-bedroom flats, type X, and ancillary works; (b) (K.8(a)) Poole Lane-Wimborne Road, site 5, eight bed-sitting room flats and ancillary works. Documents from the Borough Architect's Office, Room 106, Town Hall, Bournemouth. Deposit £2 2s. each contract. Tenders by Oct. 18.

Chelmsford, Essex.—Following at Meadgate estate, scheme 3, for B.C.: (Contract 1) Twenty-nine houses and 51 garages at Meadgate Avenue, Great Baddow; (2) 25 houses, 22 garages and 18 flats at Meadgate Avenue; (3) 33 houses, 38 garages and six flats at Meadgate Avenue; (4) 27 houses, 34 garages and 24 flats at Meadgate Avenue. Documents from the Borough Engineer, Municipal Offices, on and after Oct. 1. Deposit £2 2s. each contract, cheques payable to Chelmsford Corporation. Tenders by Oct. 24.

Daventry, Northants.—Eight bungalows and roadworks at Elizabeth Road, West Haddon, for R.D.C. Documents from

H. Bonsor, surveyor, Council Offices, Church Walk, Daventry. Deposit £3 3s. Tenders by Oct. 3.

Chichester, Sussex.—Thirty bungalows and 52 flats at the N.W. Parklands estate, for City Council. Documents from the City Engineer and Surveyor, Greyfriars, North Street, Chichester. Deposit £2 2s., cheques payable to the Corporation of Chichester. Tenders by Oct. 20.

***Cuckfield, Sussex.**—Twenty-eight dwellings at Crawley Down, contract 149, for R.D.C. Deposit £2 2s. Tenders by Oct. 24.

***Cuckfield, Sussex.**—Twenty-nine flats at Haywards Heath, contract 148, for R.D.C. Deposit £2 2s. Tenders by Oct. 24.

Dewsbury, Yorks.—Eighty-two dwellings, including construction of roads, etc., Thornhill Lees redevelopment scheme 1, for B.C. Documents from the Borough Architect and Building Surveyor, Town Hall, Dewsbury. Deposit £3. Tenders by Oct. 17.

Durham.—Pair of semi-detached houses, together with roadworks, at Cobden Street, Consett, for the Durham Water Board. Documents from A. C. Wildsmith, chief engineer, Neville Court, Durham. Deposit £2 2s. Tenders by Oct. 5.

Hull.—Erection of a new Clough cottage on Hedon Road for the Hull and East Yorkshire River Board. Documents from G. Ellison, engineer and clerk to the board, 37 North Bar Witham, Beverley. Tenders by Oct. 3.

Huntingdonshire.—Pair of semi-detached bungalows near St. Mary's Station at Ramsey St. Mary, for C.C. Documents from the County Land Agent, Walden House Huntingdon. Deposit £1 1s. Tenders by Oct. 16.

Kiveton Park, Yorks.—Eight traditional houses and roadworks at Burns Road, High Nook site, Dinnington, for R.D.C. Documents from B. D. Thompson, Council's architect, 102 Bridge Street, Worksop. Deposit £3 3s., cheque payable to Council. Tenders by Oct. 13.

Loughborough, Leics.—Block of three and one pair of aged persons' bungalows at Deane Street, for B.C. Documents from John S. Bates, borough engineer and surveyor, Southfields, Loughborough. Deposit £2 2s. Tenders by Oct. 10.

Manchester.—House, shop and post office, Altrincham Road, Wythenshawe, for City Council. Documents from City Architect, P.O. Box 488, Town Hall, Manchester, 2. Tenders by Sept. 30.

Nantwich, Ches.—Two blocks of four one-bedroom bungalows at Wistaston Green Road, Wistaston, for R.D.C. Documents from the Engineer and Surveyor, Stapely House, Nantwich. Deposit £2 2s. Tenders by Oct. 3.

Norfolk.—Following for C.C.: Nordelph—two bungalows (one contract); Hilgay (Ten Mile Bank)—one bungalow. Contractors should submit name and address to the County Land Agent, 20 Hill House Road, Norwich, stating the works in which they are interested, by Sept. 27.

Nuneaton, War.—Eighty-seven traditional houses at Wood Farm housing estate for B.C. Documents from the Borough Surveyor, Council House, Nuneaton. Deposit £2 2s. Tenders by Oct. 10.

Oakham, Rutland.—Four bungalows at Greatham for R.D.C. Documents from Pick, Everard, Keay and Gimson, architects, 6 Millstone Lane, Leicester. Deposit £2 2s. Tenders by Oct. 10.

Oldham, Lancs.—One hundred and six permanent traditional dwellings and eight brick garages on the extension to the Fitton Hill estate as follows for B.C.: Twenty-seven two-bedroom houses; 45 three-bedroom houses; 20 two-bedroom two-storey flats; 14 aged persons' bungalows; and eight brick garages. Documents from Cameron and Middleton, quantity surveyors, 21 Queen Street, Oldham. Deposit £2 2s., cheques, etc., crossed and payable to the Borough Treasurer, Oldham Corporation. Tenders by Oct. 10.

Omagh, Tyrone.—Twelve bungalows, together with ancillary works, at Arvalee for R.D.C. Documents from the Rural Council Offices, Lisnamallard, Omagh. Deposit £2 2s. Tenders by Sept. 30.

Shipston-on-Stour, War.—Four one-bedroom bungalows at Little Compton for R.D.C. Applications to Earp, Badger and Harrison, architects, Guild Chambers, Scholars Lane, Stratford-upon-Avon, by Sept. 23. Deposit £2 2s. Tenders by Oct. 17.

South Cambridgeshire.—Two bungalows at Thriplow for R.D.C. Documents from the Council's Architect and Surveyor, County Hall, Hobson Street, Cambridge. Deposit £2 2s., cheques payable to Council. Tenders by Sept. 27.

***Weymouth, Dorset.**—Twenty-six old people's bungalows on various sites for B.C. Applications by Oct. 4.

Worsley, Lancs.—One block of four and one block of two of flats with maisonnettes over on the Kingsley Road site for U.D.C. Documents from L. T. Broome, engineer and

surveyor, Town Hall, Walkden, Manchester. Deposit £2 2s., payable to Council. Tenders by Oct. 8.

York.—Forty-one dwellings at the rear of Brackenhill, St. George's Place, for City Council. Documents from E. Firth, city architect, 8 St. Leonard's Place, York. Deposit £3., cheques payable to York Corporation. Tenders by Oct. 8.

MATERIALS AND SUPPLIES

Derbyshire.—Supply only to Staveley of the following precast concrete units for proposed footbridge over River Rother, Works Road, Staveley, for C.C.: (1) Two post-tensioned beams, 7 ft. long; (2) 61 pretensioned slabs, 6 ft. 8 in. by 1 ft. 13 in.; (3) 10 reinforced concrete pipe cradles. Documents from S. Mehew, county surveyor, County Offices, Matlock. Deposit £2, cheques payable to Council. Tenders by Sept. 27.

Ipswich, Suffolk.—Supply of school furniture required for delivery in March, 1961, for B.C. Documents from the Chief Education Officer, 17 Tower Street, Ipswich. Tenders by Sept. 30.

Midlothian.—Supply of paints and kindred materials for the year commencing Nov. 16, 1960, for C.C. Documents from the County Clerk, County Buildings, George IV Bridge, Edinburgh, 1. Tenders by Oct. 7.

Monmouthshire.—Supply and fixing, where necessary, of the following at the Monmouthshire Technical College, Crosskeys, for C.C.: (a) Library furniture; (b) fixed joinery (i.e., wall benches, island benches and worktables); (c) laboratory furniture; (d) chairs and stools; (e) gymnasium equipment; (f) heavy equipment and machinery. Documents from S. Leyshon, county architect, Queen's Hill, Newport, Mon. Tenders by Oct. 4.

St. Albans, Herts.—Ashley Road bridge for City Council. Tenders are invited from manufacturers of precast prestressed concrete products for the supply to site of all necessary units of their own design for the construction of a highway bridge deck of approx. 29 ft. span and 47 ft. wide. Units which have to be tensioned on site will not be considered. Documents from the City Engineer and Surveyor, 16 St. Peter's Street, St. Albans. Tenders by Sept. 29.

Wallasey, Ches.—Supply and installation at the Wallasey Technical School and St. Georges Secondary Modern School (Boys) of fixed furniture for B.C. Applications to the Borough Architect, Town Hall, Wallasey.

PLANT AND MECHANICAL TRANSPORT.

Camberwell.—Supply of following for B.C.: (a) Simon hydraulic platform, P30, on Bedford diesel 3-ton chassis; (b) Eagle 3-stage tower wagon, type A, on Bedford diesel 3-ton chassis; (c) two tower vans, Rawlinson B58 type tower on Bedford petrol 10/12 cwt. "Cal" vans; (d) two Bedford petrol 10/12 cwt. "Cal" vans. Documents from Borough Engineer and Surveyor, Town Hall, S.E.5. Tenders by Sept. 27.

Halesworth, Suffolk.—Supply of one Karrier Bantam chassis all-steel refuse vehicle, of 10 cu. yd. capacity, fitted with single cab and petrol engine, for R.D.C. The successful tenderer will be required to accept in part exchange the Council's existing refuse vehicle, a 1954 model Austin Eagle 5 cu. yd. capacity vehicle, any tenderer wishing to inspect the council's existing refuse vehicle may do so by arrangement with the surveyor to the Council. Documents from B. F. Basford, clerk of the Council, Town Hall, Halesworth. Tenders by Sept. 30.

Salford, Lancs.—Supply of one B.M.C. 30 cwt. forward-control van (L.D. type) with diesel engine for City Council. Written applications to the General Manager and Engineer, Salford City Transport, Frederick Road, Salford, 6. Tenders by Oct. 3.

Stockport, Ches.—Supply of a new 5 cwt. van for B.C. Documents from Borough Surveyor, Town Hall, Stockport. Tenders by Oct. 7.

Waterford, Eire.—Supply of the following machinery to Dungarvan for C.C.: Nine lorries, 6-7 cu. yd.; three dumpers, 3 cu. yd.; three dumpers, 1 cu. yd.; three pick-up trucks, 15-25 cwt.; one library van on 2 1/2-ton chassis. Documents from the County Engineer, Ards Brugh, Dungarvan, Co. Waterford. Tenders by Oct. 14.

PLAYING FIELDS, PARKS, ETC.

***Bury, Lancs.**—Clarence Park extension for B.C. Tenders by Oct. 8.

Inverness-shire.—Construction of additional playgrounds, resurfacing of the existing playground, and surface water drainage works, at Inverness High School, for C.C. Documents from the County Surveyor, County Buildings, Inverness. Tenders by Sept. 30.

***Rowley Regis, Staffs.**—Construction of football pitch at Haden Hill Park for B.C. Tenders by Oct. 7.

RIVER AND FLOOD PREVENTION WORKS

Queensferry, Ches.—Construction of a pumphouse and sub-station, concrete culverts and waterways, and tidal outfall with steel sheet piling, at Queensferry, approx. five miles west of Chester, for Dee and Clwyd River Board. Documents from Rofe and Rafferty, consulting engineers, 9 Brewer's Green, Westminster, London, S.W.1. Deposit £5 5s., cheque payable to the Board. Tenders by Oct. 7.

ROADS, BRIDGES AND SITE WORKS

***Aberdare, Glam.**—Private street works in Brynhyfryd, Cwmanan and approach road for U.D.C. Deposit £2 2s. Tenders by Oct. 20.

Accrington, Lancs.—Supply and laying by mechanical spreader and finisher of approx. 17,220 sq. yd. of hot-rolled asphalt on trunk, county and district roads in the borough for B.C. Documents from the Borough Engineer and Surveyor, 44 Union Street, Accrington. Tenders by Sept. 28.

Argyllshire.—Reconstruction of Ballimore Bridge and approaches on B.836, approximately 11 miles from Dunoon, for C.C. The works consist of the construction of a reinforced concrete slab bridge, 30ft. span, and approximately 500yd. of single lane carriageway. Submit names to the County Engineer, Lochgilphead, Argyll, by Sept. 30.

***Bath.**—Stage 1 and 2 of Inner Ring Road for City Council. Deposit £2 2s. Tenders by Oct. 15.

***Berkshire.**—Making-up Ellis Road, Crowthorne, for C.C. Deposit £2. Tenders by Oct. 7.

Bewdley, Worcs.—Channelling, kerbing and surfacing of Hop Pole Lane (approx. 90 lin. yd.) for B.C. Documents from J. E. Sheen, borough surveyor, Municipal Offices, Load Street, Bewdley. Tenders by Oct. 8.

Bingley, Yorks.—Supplying and laying by Barber Greene machine of approx. 5,800 sq. yd. of cold asphalt carpeting within the urban district for U.D.C. Documents from the Surveyor, Town Hall, Bingley. Deposit £2 2s. Tenders by Oct. 12.

Bromley, Kent.—Construction of Baston Road improvement for B.C., comprising 1,903 cu. yd. excavation, laying of 2,945 sq. yd. 9in. reinforced concrete road slab surfaced with 3½in. thick hot-rolled asphalt, 700 lin. yd. granite kerb, 1,573 sq. yd. a.s. paving, 300 lin. yd. 12in. diameter g.s. sewer, 212 lin. yd. dwarf 9in. brick boundary wall, and ancillary works. Documents from the office of the Borough Engineer, Municipal Buildings, Bromley. Tenders by Oct. 6.

Bury Port, Carm.—Construction of footbridge over branch railway line from Furnace housing site to Gors housing site for U.D.C. Documents from J. E. Vaughan Evans, engineer and surveyor, Council Offices, Bury Port. Tenders by Oct. 10.

Bury St. Edmunds, Suffolk.—Construction of carriageways, footways and surface water sewers at Hospital Road for B.C. The work comprises the laying of 3,500 sq. yd. of base course and wearing course asphalt carriageways, 600 lin. yd. of concrete kerb, 1,125 sq. yd. of concrete paving, 1,265 sq. yd. of grass verges, and 375 lin. yd. of 6in. diameter and 9in. diameter surface water sewers. Documents from the Borough Surveyor, Borough Offices, Bury St. Edmunds. Deposit £2 2s. Tenders by Sept. 27.

***Carmarthenshire.**—Widening Commissioners Bridge, Kidwelly, for C.C. Deposit £2. Tenders by Oct. 12.

***Carmarthenshire.**—Widening of Pontamman Road, Ammanford, for C.C. Deposit £2. Tenders by Oct. 12.

Cheadle and Gatley, Ches.—Making-up of Regent Close, Cheadle Hulme, for U.D.C. Documents from the Engineer and Surveyor, Town Hall, Cheadle. Deposit £2 2s. Tenders by Oct. 12.

Chelmsford, Essex.—Construction of road, sewer and ancillary works for phase 3 of Meadgate estate for B.C., comprising construction of approximately 7,600 sq. yd. of reinforced concrete carriageway, 2,500 lin. yd. of foul and surface water sewers 15in.-6in. diameter, manholes, car parks and other incidental works. Documents from Borough Engineer and Surveyor, Municipal Offices, Chelmsford. Deposit £2 2s. Tenders by Oct. 3.

Chigwell, Essex.—Stradbroke Drive, Chigwell (third section) for U.D.C., comprising approximately 320 lin. yd. kerbing, 1,070 sq. yd. carriageway, 1,120 sq. yd. footways and 1,040 sq. yd. features. Documents from the Engineer and Surveyor, Council Offices, Old Station Road, Loughton. Deposit £2 2s. Tenders by Oct. 4.

***Chislehurst and Sidcup, Kent.**—Resurfacing Bromley Road for U.D.C. Deposit £2 2s. Tenders by Sept. 30.

Clevedon, Som.—Making-up of Edward Road South, approx. 700ft. in length, for

U.D.C. The work involves the provision of kerbing, channelling, re-forming the base, and provision of tarmacadam surfacing to both carriageway and footways. Documents from the Engineer and Surveyor, The Council House, Clevedon. Tenders by Oct. 7.

Clevedon, Som.—Making-up of Durbin Park Road, approx. 550ft. in length, for U.D.C. The work involves the provision of kerbing, channelling, re-forming the base, and provision of tarmacadam surfacing to both carriageway and footways. Documents from the Engineer and Surveyor, The Council House, Clevedon. Tenders by Oct. 7.

Coleraine, Londonderry.—Reconstruction of Lodge Road for B.C. The contract includes for all necessary excavation work in carriageways, footpaths, etc., the laying of approx. 1,500 lin. yd. of sewer varying in diameter from 12in. to 6in., the laying of 1,000 lin. yd. of 8in. diameter water main, 900 lin. yd. of 3in. diameter water main, and 1,850 lin. yd. of 6in. diameter gas main, the pitching, blinding and surfacing of some 12,000 sq. yd. of carriageway and some 5,000 sq. yd. of flagged footpath, together with all necessary ancillary works. Documents from the Borough Surveyor, 54 Stone Row, Coleraine. Deposit £5 5s. Tenders by Oct. 15.

Coulson and Purley, Surrey.—Highway improvement, junction of Mitchley Avenue-Mitchley Hill and Rectory Park, Sanderstead, for U.D.C. Documents from H. M. Collins, Council Offices, Purley. Deposit £3 3s. Tenders by Sept. 26.

Dartford, Kent.—The Dartford Tunnel—finishings, ventilation buildings and services for Ministry of Transport. Following works, to be comprised in one contract: (1) Furnishing the tunnel, about 1,560yd. long, with a concrete lining, a reinforced concrete road deck with paving and footways, wall finishings and a suspended ceiling; (2) furnishing the open cut approaches, each about 210yd. long, with paved carriageways, footways, precast concrete slab facings and copings, suspended sun visors, etc.; (3) constructing two ventilation buildings with reinforced concrete exhaust shafts and other special features; (4) providing and installing (principally through the engagement of nominated sub-contractors) equipment of electricity distribution, lighting, tunnel services and pumping; (5) ancillary works, including completion of access shafts, passages and pump chambers, and the construction of access roads. Documents from Mott, Hay and Anderson, 9 Idlesleigh House, Caxton Street, Westminster, London, S.W.1, consulting engineers. Deposit £50, cheque payable to the Ministry. Tenders by Oct. 19.

Dewsbury, Yorks.—Extension and widening of tarmacadam driveway and footpaths at St. John Fisher R.C. Modern School, for B.C. Documents from the office of the Borough Architect and Buildings Surveyor, Town Hall, Dewsbury. Tenders by Oct. 10.

Doncaster, Yorks.—Making-up of part of a private street known as St. Wilfrid's Road (between 67-87, inclusive) for B.C., comprising the construction of approx. 110 lin. yd. of 6in. and 9in. s.w. sewer, 220 lin. yd. of kerb, 875 sq. yd. of coated macadam surfacing, including broken stone foundation, 400 sq. yd. of flagging to footpaths, together with brick manhole, gullies and ancillary works. Documents from the Borough Surveyor, 2 Priory Place, Doncaster. Deposit £3 3s. Tenders by Oct. 15.

Dumfries.—Construction of communicating road, Portland Drive-King Street-Terregles Street, for B.C. The work involves the construction of approximately 300 lin. yd. of roadway and fencing and other incidental works. Documents from the Borough Surveyor, Municipal Chambers, Dumfries. Tenders by Oct. 14.

Dunstable, Beds.—Making-up of Katherine Drive (extension) for B.C., comprising some 2,000 sq. yd. of bitumen macadam surfacing, 450 lin. yd. stone paving, together with surface water drainage, street lighting and other incidental works. Documents from the Borough Engineer, Municipal Offices, Dunstable. Deposit £2 2s. Tenders by Sept. 30.

East Elloe, Lincs.—Roadworks at Sutton Bridge and Chestnut Terrace for R.D.C. Applications to the Council Architect, Mattimore House, Holbeach, Spalding. Deposit £2 2s.

Egham, Surrey.—Construction of verges, footpaths and carriageways (length approximately 250yd.) at College Avenue for U.D.C. Documents from the Engineer and Surveyor's Office, Fire Station Buildings, High Street, Egham. Tenders by Sept. 30.

Enniskillen, Fermanagh.—Roads improvement scheme, contract 1, Henry Street and Sligo Road, for B.C.: Manufacture and delivery of approx. 4,000 beam units for Ministry of Transport loading over clear spans of 20ft. Documents from the offices of W. D. R. and R. T. Taggart, consulting engineers, 13 College Gardens, Belfast, 9. Tenders by Sept. 30.

***Epsom and Ewell, Surrey.**—Reconstruction of footpaths for B.C. Deposit £2 2s. Tenders by Oct. 3.

Fareham, Hants.—Construction of 70 sq. yd. access road, 1,750 sq. yd. footpath, and 6,050 sq. yd. grassing at Winnards Park Estate, Salisbury, for U.D.C. Documents from Engineer and surveyor, Westbury Manor, Fareham. Deposit £2. Tenders by Sept. 27.

Finchley, London, N.2.—(second portion) length 330ft. for B.C. Documents from the office of the Borough Engineer and Surveyor, 294-296 Regents Park Road, London, N.3. Deposit £2. Tenders by Sept. 26.

Gloucestershire.—Bibstone diversion, Cromhall, for C.C. Works consist of the construction of a 330 lin. yd. diversion to the existing road including earthworks, drainage, fencing, 24ft. wide carriageway and ancillary works. Documents from County Surveyor, Quay Street, Gloucester. Deposit £5, payable to C.C. Tenders by Oct. 5.

Guildford, Surrey.—Construction of 1,867 sq. yd. of footpaths and ancillary works at Meadowlands, West Clandon, for R.D.C. Documents from J. W. Snape, engineer and surveyor, Millmead House, Guildford. Deposit £2 2s. Tenders by Oct. 10.

***Havant and Waterloo, Hants.**—Making-up Nutbourne Road, Hayling Island, for U.D.C. Tenders by Oct. 13.

Hinckley, Leics.—Road and sewer works at Carr's Row, Earl Shilton (length 210yd.), together with the provision of a garage site and other ancillary works, for U.D.C. Documents from the Surveyor, Argent House, St. Mary's Road, Hinckley. Deposit £2. Tenders by Oct. 3.

Hitchin, Herts.—Construction of soil and surface water sewers, carriageway and kerbing on the Westmill Estate for U.D.C. The work comprises approx. 2,470yd. of 6in. to 18in. sewers (part stoneware and part concrete pipes), together with manholes and appurtenant works, 6,260 sq. yd. of reinforced concrete carriageway and 1,800yd. of concrete kerb. Documents from the Surveyor, Council Offices, Brand Street, Hitchin. Deposit £3 3s. Tenders by Oct. 7.

***Holland.**—Reconstruction of trunk road, A.17, from Stimpsons Cross to Bridgehouse Bridge, for C.C. Deposit £5. Tenders by Oct. 24.

Leicester.—Construction of roads, sewers, footways and verges at Scraptoft (Thurnby) housing estate, contract 9, for City Council, comprising 4,900 sq. yd. concrete carriageway, 4,600 sq. yd. bitumen macadam footway, 1,450 lin. yd. 9in. diameter sewers, together with manholes; 8,900 sq. yd. turfed and seeded areas. Documents from John L. Beckett, city surveyor, Town Hall, Leicester. Deposit £1 1s. Tenders by Oct. 3.

***Leicester.**—Surface improvements to car parks for City Council. Deposit £1 1s. Tenders by Sept. 30.

Leicester.—Construction of roads, sewers, footways and verges at Scraptoft (Thurnby) housing estate, contract 9, for City Council, comprising 4,900 sq. yd. concrete carriageway, 4,600 sq. yd. bitumen macadam footway, 1,450 lin. yd. 9in. diameter sewers, together with manholes, 8,900 sq. yd. turfed and seeded areas. Documents from John L. Beckett, city surveyor, Town Hall, Leicester. Deposit £1 1s. Tenders by Oct. 3.

***Leicestershire.**—Reconstruction of (a) section route, A.453, near Appleby Magna cross road; and (b) section route, A.444, Appleby Magna from Austrey Lane for C.C. Deposit £5. Tenders by Oct. 13.

***Leicestershire.**—Reconstruction of a section of route A.444 for C.C. Deposit £5. Tenders by Oct. 13.

***Leicestershire.**—Making-up Radford Drive (part), Braunstone, for C.C. Deposit £5. Tenders by Oct. 13.

***Leicestershire.**—Making-up of Stratford Road (part), Braunstone, for C.C. Deposit £5. Tenders by Oct. 13.

***Lincoln.**—Newark/Hykeham Roads junction improvement scheme for City Council. Deposit £2 2s. Tenders by Oct. 8.

Midlothian.—Following for C.C.: Strengthening of Elginhaugh Bridge, a three-span masonry arch bridge over River North Esk on Edinburgh-Carlisle trunk road, route A.7, near Eskbank, by construction of reinforced concrete slab over area of bridge deck. Carriageway and footpath surfacing and alteration of Post Office plant are also included in contract. Documents from County Surveyor, 32 Palmerston Place, Edinburgh, 12. Deposit £2 2s. Tenders by Sept. 26.

Montgomeryshire.—Development of playing fields at Newtown High School for C.C. The work consists of clearance and formation of roads and paths and tarmac tennis courts, together with erection of wire surround to same. Documents from the County Architect, Education Offices, Newtown. Tenders by Oct. 3.

Neston, Ches.—Construction of access road, concrete bases and other ancillary works in

connection with the proposed erection of garages on the Liverpool Road-Raby Park Road housing estate, as under, for U.D.C.: Twelve garages off Hawkins Road and two garages off Shakespeare Road. Documents from the office of the Engineer and Surveyor, Town Hall, Neston. Tenders by Sept. 26.

Newport, Mon.—Completion of roads and footways on the St. Julian's Estate for B.C. Documents from the Borough Engineer, Civic Centre, Newport, Mon., on production of the Borough Treasurer's receipt for a deposit of £2 2s. Tenders by Sept. 28.

***Reading, Berks.**—Alternative access to Yield Hall Car Park for B.C. Deposit £2 2s. Tenders by Oct. 10.

Rickmansworth, Herts.—Tarmacadam surfacing at Maple Lodge Works for West Hertfordshire Main Drainage Authority, comprising supply and laying of approx. 2,000 super. yd. of tarmacadam (tarpaving) surfacing, together with ancillary works. Documents from the General Manager, West Hertfordshire Main Drainage Authority, Maple Lodge, Maple Cross, Rickmansworth. Tenders by Sept. 28.

Rochford, Essex.—Making-up of Sutton Court Drive and Warwick Drive (part of), contract 269, for R.D.C. The works consist of a total of 6,575 sq. yd. of 5in. reinforced concrete carriageway, 4,300 cu. yd. of excavation and 1,135 lin. yd. of 6in., 9in., 12in. and 15in. glazed stoneware and concrete surface water sewers, together with manholes and all incidental works. Documents from the Engineer and Surveyor, Council Offices, Rochford. Deposit £5. Tenders by Oct. 6.

***Rochester, Kent.**—Construction of carriageway, etc., at Earl Estate (stage 1c) for City Council. Deposit £2 2s. Tenders by Oct. 17.

Rowley Regis, Staffs.—Proposed extension to Whitehall Gardens for B.C., including the bulk excavation and disposal to Council tip of approx. 6,000 cu. yd. of material and the spreading and levelling of 1,250 cu. yd. on site. Documents from S. G. Wood, borough engineer and surveyor, Municipal Buildings, Old Hill, Staffs. Deposit £2 2s. Tenders by Oct. 5.

St. Albans, Herts.—King Harry Lane improvement for City Council, involving the construction of 3,300 sq. yd. of carriageway in lean-mix concrete, gravel asphalt and bitumen macadam surfacing, 1,620 sq. yd. of a.s. paving, and 830 lin. yd. of kerb, together with ancillary works. Documents from the office of the City Engineer and Surveyor, 16 St. Peter's Street, St. Albans. Tenders by Sept. 29.

Scotland.—Road works north of Fifth of Forth, contract 5, for Forth Road Bridge Joint Board. Work includes: (1) Approx. 3½ miles of dual carriageway approach roads and four miles of connecting roads; (2) 10 reinforced concrete bridges; (3) 600ft. long reinforced concrete viaduct; (4) 1,000ft. long twin tunnels. Documents from Mott, Hay and Anderson, 14 Melville Street, Edinburgh, 3. Deposit £30, by cheque payable to Board. Tenders by Nov. 15.

Sodbury, Glos.—Following for R.D.C.: (Contract 326) Road and footpath surfacing, Yate; (327) road surfacing, Filton. Tenders are invited for either or both the contracts, which include the surfacing of 2,250 super. yd. of footpath and 1,420 super. yd. of carriageway and the laying of 1,050 lin. yd. of kerb at Yate; and the surfacing of 650 super. yd. of access road at Filton. Documents from the Engineer and Surveyor, Council Offices, Chipping, Sodbury. Tenders by (326) Oct. 10 and (327) Oct. 17.

Staffordshire.—Construction of dual carriageways for a distance of approx. 1½ miles on the Exeter-Leeds trunk road (Lichfield-Burton-on-Trent, A.38), from south of Alrewas to Wychnor Farm, for C.C. The work includes the reconstruction in reinforced concrete of three flood bridges and a river bridge; the widening of bridges over the River Trent and an arm of the Trent and Mersey Canal; construction of embankments, broken stone carriageway base, bitumen macadam base course and hot rolled asphalt wearing course. Deposit £5. Tenders by Oct. 10.

Standish-with-Langtree, Lancs.—Making-up of Roundmoor Road (100 lin. yd. approximately) and part of Thirlmere Avenue (47 lin. yd. approximately). Standish, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Ashfield House, Standish. Deposit £2 2s. Tenders by Oct. 3.

Stockport, Ches.—Final carpeting of a section of the roads comprising the Hillcrest Road and Brinnington housing estates, contract 15, for B.C. The area to be surfaced is approximately 20,000 sq. yd. Documents from Room 76, Town Hall, Stockport. Tenders by Sept. 30.

Stourbridge, Worcs.—Making-up of footways and verges at Rufford Estate in precast concrete flag paving (4,500 sq. yd. approx.) and ancillary works for B.C. Documents from H. W. Morris, borough engineer and surveyor, Council House, Stourbridge. Deposit £2 2s. Tenders by Oct. 11.

Sunderland, Dur.—Construction of additional paved area at St. Joseph's R.C. School for B.C. Documents from the Borough Architect, Grange House, Stockton Road, Sunderland. Tenders by Oct. 7.

Surbiton, Surrey.—Resealing of joints in concrete carriageways for B.C. Documents from the office of R. Thirlway, borough engineer and surveyor, Council Offices, Ewell Road, Surbiton. Tenders by Sept. 30.

Swanage, Dorset.—Ullwell Road widening for U.D.C.: Excavation, removal, tipping and spreading of approx. 4,500 cu. yd. of soil. Documents from the Surveyor, Town Hall, Swanage. Tenders by Oct. 3.

Swansea.—Strengthening of a bridge carrying the A.48 over the railway at Tawe Road between Llansamlet and Lonlas, for B.C. The existing bridge is a masonry arch and the strengthening is to be carried out by surmounting the arch with a reinforced concrete saddle which is supported at the abutments by 18 vertical and 35 Raker bored piles. Documents from the office of R. D. Moody, borough engineer and surveyor, Guildhall, Swansea. Deposit £3, cheques payable to B.C. Tenders by Sept. 30.

Swansea.—Private street works in lane at rear of Eaton Crescent and Rhyddings Park Road and the adjoining unmade part of Gwydr Crescent, Uplands, for B.C. The works comprise, briefly: 740 cu. yd. of excavation, 1,098 sq. yd. of carriageway, 349 lin. yd. of kerbing, 223 sq. yd. of footpath, 162 lin. yd. of 6in. drains, together with other incidental works. Documents from the Borough Engineer and Surveyor, The Guildhall, Swansea. Deposit £2. Tenders by Oct. 10.

Walthamstow, Essex.—Following for B.C.: Repair and reinstatement of carriageways and footways, which will be consequent, generally, upon operations carried out by the public utility undertakings (which may be extended for minor highway reconstruction works), and the contract will run for a period not exceeding two years, subject to three months' notice of termination on either side. Documents from the Borough Engineer and Surveyor, Town Hall, Walthamstow, London, E.17. Deposit £2 2s. Tenders by Oct. 3.

***Walton and Weybridge, Surrey.**—Construction of Gate Road, Weybridge, for U.D.C. Tenders by Oct. 4.

***Walton and Weybridge, Surrey.**—Resurfacing of various footways for U.D.C. Tenders by Oct. 4.

***Walton and Weybridge, Surrey.**—Preliminary roadworks, Sandy Lane housing estate, for U.D.C. Tenders by Oct. 6.

***Walton and Weybridge, Surrey.**—Extension to Walton Park and construction of new car park for U.D.C. Tenders by Oct. 4.

Walton-le-Dale, Lancs.—Making-up of the following for U.D.C.: (1) Lourdes Avenue (part of), Lostock Hall; (2) St. Patrick's Place, Walton-le-Dale; (3) Brown Street (part of), Bamber Bridge; (4) Oxford Road (part of), Bamber Bridge; (5) Baldwin Street, Bamber Bridge; (6) Ellen Street (part of), Bamber Bridge; (7) road to St. Mary's R.C. Secondary School off Station Road, Bamber Bridge. Documents from the Engineer and Surveyor, Council Offices, Bamber Bridge. Tenders by Sept. 28.

Wembley, Middx.—Woodcock Hill improvement (Draycott Avenue to Kenton Road) and soil and surface water sewers for B.C., comprising reconstruction of carriageway in reinforced concrete (approx. 10,000 sq. yd.) and approx. 850 yd. sewers (from 9in. to 27in. diameter). Documents from the Borough Engineer and Surveyor, Town Hall, Wembley. Tenders by Sept. 30.

Windsor, Berks.—Repairing and resurfacing approx. 4,000 sq. yd. of Winkfield Road (Clew Hill Road to Woodland Avenue) in bituminous macadam for B.C. Documents from Borough Engineer, Kipling Memorial Building, Alma Road, Windsor. Tenders by Oct. 17.

***Wrexham, Denbighs.**—(a) Road improvement at junction of Ruthin, Bradley and Victoria Roads, and (b) roads and sewers at light industrial site, Queens Park, for B.C. Deposit £2 2s. each contract. Tenders by Oct. 3.

York.—Hull Road (part) improvement for City Council, comprising the construction of approx. 320 lin. yd. of 9in. diameter stoneware pipe, brick manholes and the reconstruction of footpaths and verges and incidental works. Documents from Chas. J. Minter, city engineer, surveyor and planning officer, 7 St. Leonard's Place, York. Deposit £2 cheque, crossed and payable to York Corporation. Tenders by Oct. 11.

SEWERAGE, SEWAGE AND REFUSE DISPOSAL

***Amersham, Bucks.**—Cockpit Hole, Heath End drainage scheme, for R.D.C. Applications by Sept. 30.

Banbridge, Down.—Mechanical plant for sewage disposal works, Seapatrick, for R.D.C.:

Supply of screens, penstocks, valves, etc., and the supply and erection complete of distributor arms, dosing syphons, one automatic compressed-air ejector set, one non-choke vertical spindle centrifugal pump and motor, switch gear, pipe work and ancillary equipment. Documents from J. G. McKinney, engineer and surveyor, Town Hall, Banbridge. Deposit £3 3s. cheque. Tenders by Nov. 12.

***Barnes, Surrey.**—Surface water sewer, Rock Lane (A.306), for B.C. Tenders by Oct. 27.

***Beeston and Stapleford, Notts.**—Culverting two watercourses—Central Avenue for U.D.C. Deposit £2 2s. Tenders by Oct. 10.

Beeston and Stapleford, Notts.—Lifting and canting of sewage sludge from the Beeston Sewage Works, estimated at approx. 2,300 cu. yd., to specified points within the urban district for U.D.C. Documents from the Engineer and Surveyor, Town Hall, Beeston. Deposit £1 1s. Tenders by Oct. 3.

Bexley, Kent.—Reconstruction of carriageway and footways, and for the renewal and enlargement of the existing surface water sewer at Bellegrave Road, Wellin, and ancillary works for B.C. The works will affect the surface water sewer for a total length of 1,070 yd., varying between 9in. and 33in. diameter, and will include 13 yd. of box culvert. The road improvement comprises the widening of the existing carriageway to 40ft. and reduction of the two footways to 10ft. The carriageway will be constructed of dry lean concrete and hot-rolled asphalt, and footways will be flagged. Overall width of highway 60ft., length about 1,000 yd. Documents from the Borough Engineer, West Lodge, Broadway, Bexleyheath. Deposit £5 5s. cheque, crossed and payable to Bexley Corporation. Tenders by Oct. 7.

Bromsgrove, Worcs.—Construction of foul sewers at Lickey Square and Twatling Road, Rednal, together with all ancillary works, for U.D.C. The approximate quantities are as follows: 491 lin. yd. 9in. diameter and 460 lin. yd. 6in. diameter salt-glazed pipe sewers. Documents from the Engineer and Surveyor, Council House, Bromsgrove. Deposit £2 2s. Tenders by Oct. 14.

Cheadle, Staffs.—Construction of sewers at Rocks Cottages and Bank Cottages, Uttoxeter Road, Draycott, contract 321, for R.D.C., comprising the construction of approx. 25 yd. of 4in. diameter sewers and inspection chambers. Documents from the Engineer and Surveyor, Council Offices, Leek Road, Cheadle. Deposit £2. Tenders by Sept. 29.

***Chertsey, Surrey.**—Lyne village drainage, contract 6, for U.D.C. Deposit £5. Tenders by Oct. 24.

Exeter.—Construction of surface water sewer at Wonford Street for City Council, comprising the supply, laying and jointing of approx. 214 yd. of 24in. diameter and 94 yd. of 21in. diameter concrete Ogee tubes, including the construction of manholes and gulleys. Documents from John Brierley, city engineer and surveyor, Municipal Offices, 7 Southernhay West, Exeter. Deposit £2 2s. Tenders by Oct. 3.

***Gipping, Suffolk.**—Bramford sewerage, contract 2, for R.D.C. Deposit £5 5s. Tenders by Oct. 15.

Hambledon, Surrey.—Construction of approximately 160 lin. yd. of 6in. diameter surface water sewer and ancillary works across open meadow at Dunsford for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Bury Fields, Guildford. Deposit £2 2s., cheques payable to the R.D.C., crossed Lloyds Bank, Ltd., and sent to the Treasurer, Council Offices, Bury Fields, Guildford. Tenders by Oct. 10.

***Haverfordwest, Pems.**—Spittal sewerage scheme for R.D.C. Tenders by Nov. 4.

***Irlam, Lancs.**—Construction of pumping station and laying sewers for U.D.C. Deposit £5 5s. Tenders by Nov. 4.

***Kingsbridge, Devon.**—Kingston sewerage and sewage disposal scheme for R.D.C. Deposit £3 3s. Tenders by Oct. 17.

Lothlingland, Suffolk.—Sewerage contract 9 for R.D.C.: Construction of approx. 1½ miles of 6in. glazed stoneware and concrete sewers, manholes, a pumping station and approx. 1½ miles of 4in. and 5in. asbestos-cement rising main at Barnby in the Lothlingland rural district and North Cove in the Wainford rural district. Documents from A. P. I. Cotterell and Son, 54 Victoria Street, Westminster, S.W.1, engineers, on or after Sept. 19. Plans also seen at the Lothlingland Rural District Council Offices, Rectory Road, Lowestoft. Deposit £5 5s. Tenders by Oct. 17.

Manchester.—Following for City Council: Construction of pre-aeration and primary sedimentation plant comprising eight sedimentation tanks each 146ft. diameter and appurtenant works at Davyhulme sewage works extensions stage 1B. Documents from City Surveyor, Town Hall, Manchester, 2. Tenders by Oct. 31.

Neyland, Pems.—Sewerage and sewage disposal works, contract 5, for U.D.C., comprising construction of two sludge thicken-

ing tanks with concrete floor and walls and consolidated rubble-filled earth covered banks, short lengths of 6in. diameter concrete and cast-iron drains, together with other works incidental thereto. Documents from A. P. I. Cotterell and Son, engineers, 54 Victoria Street, Westminster, S.W.1. Plans also seen at the Council Offices, Neyland, Milford Haven. Deposit £3 3s. Tenders by Sept. 30.

North Witchford, Cambs.—Following for R.D.C.: (Contract 2) The supply and erection at Benwick of duplicate 100 g.p.m. sludge pumps, complete with electric motors, starters and accessories; (3) the supply and erection at Benwick of duplicate 20 g.p.m. and duplicate 100 g.p.m. ejectors, complete with electric motors, starters and accessories. Documents from John H. Haiste and Partners, Belmont House, 20 Wood Lane, Headingley, Leeds, 6, consulting engineers. Deposit £3 3s. each, cheques payable to R.D.C. Tenders by Oct. 8.

Norton, Yorks.—East Heslerton sewerage and sewage disposal scheme for R.D.C. Work includes approximately 1,500yd. of 6in. diameter sewer in the village of East Heslerton, together with the construction of a sewage disposal works, manholes and other ancillary works. Documents from Clerk of the Council, R.D.C. Offices, Welham Road, Norton. Deposit £1 1s. Tenders by Oct. 13.

Ramsey, Hunts.—Laying of connections to recently completed foul sewers and for the reinstatement of trenches for same for U.D.C. The work comprises the laying of about 5,500yd. of 6in. and 4in. diameter drains in varying lengths and the construction of inspector chambers and other sundry works. The number of connections to be made to the sewers is approximately 500. Documents from Pick, Everard, Keay and Gimson, consulting engineers, 6 Millstone Lane, Leicester. Deposit £3 3s. Tenders by Oct. 1.

Ross and Cromarty.—Providing, laying and jointing 84yd. of 9in. c.i. outfall sewer on timber piles near low water mark at Plockton for C.C. Documents from the County Water Engineer, Burn Place, Dingwall. Tenders by Sept. 30.

Runcorn, Ches.—Kingsley sewerage and sewage disposal scheme for R.D.C., comprising the construction of about 7,000 lin. yd. of glazed stoneware pipe sewers, 9in. and 6in. in diameter, with manholes and storm overflow chambers, also sewage disposal works comprising screening and detritus tanks, sedimentation tanks, storm water tanks, dosing chambers, bacteria bed, humus tanks, pump houses and sludge lagoons, with incidental works. Documents from A. H. S. Waters and Partners, consulting engineers, 25 Temple Row, Birmingham, 2, and R. Patrick Williams, clerk of the Council, Council Offices, Castle Park, Frodsham, via Warrington, on or after Oct. 4. Deposit £5 5s. Tenders by Nov. 4.

St. Neots, Hunts.—Laying of a 6in. diameter sewer in the market square, together with the necessary manholes, connections with existing sewers and incidental works for U.D.C. Documents from John Taylor and Sons, consulting engineers, Artillery House, Artillery Row, Westminster, S.W.1. Deposit £5. Plans also seen at the Council Offices, Huntingdon Street, St. Neots. Tenders by Oct. 12.

Shepton Mallett, Som.—Evercrech sewage disposal work for R.D.C.: (a) Laying of approximately 240 lin. yd. of 6in. diameter g.s.s. sewers, together with the construction of relevant manholes; (b) construction of a sewage disposal works comprising inlet and stormwater chambers, screening and detritus chambers, two stormwater tanks each of 19,200 gallons capacity, one upward flow settlement tank of 38,400 gallons capacity, two circular percolating filters each of 370 cu. yd. capacity, two humus tanks each of 25,600 gallons capacity, sludge drying beds of 600 sq. yd. total area, two site pumping stations and other appurtenant works; (c) laying of approximately 850 lin. yd. of 9in. diameter pipes for extension of the existing effluent outfall, together with the construction of relevant manholes. Applications to W. Herbert Bateman and Partners, consulting engineers, Chesterfield House, Bath-easton, Bath, giving the names and addresses of three engineers under whose direction similar schemes have been carried out. Deposit £5 5s. (cheques payable to R.D.C.). Plans also seen at the Council Offices, Highfield House, Park Road, Shepton Mallett. Tenders by Oct. 3.

Stroud, Kent.—Construction of a 6in. diameter sewer approximately 250 lin. yd. in length at Walmers Avenue, Higham, for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Frindsbury Hill, Stroud. Deposit £2 2s. Tenders by Oct. 7.

Stroud, Glos.—Construction of a storm water drain and diversion of pumping main at Ryeford, Stonehouse, for R.D.C. The works involve the laying of approximately 40yd. of

6in. g.s.s. pipes and 90 lin. yd. of 4in. class B asbestos pressure pipes including carrying this pipe over the Stroud Water Canal. Documents from G. E. Gaddsen, clerk, Council Chambers, John Street, Stroud. Deposit £2 2s. Tenders by Sept. 30.

Surbiton, Surrey.—Hook Road, surface water sewer, contract 3, for B.C. Construction of approx. 325yd. of 12in. and 15in. diameter concrete pipe sewer, together with manholes and other appurtenant works. Documents from John Taylor and Sons, engineers, Artillery House, Artillery Row, Victoria Street, Westminster, London, S.W.1. Deposit £5. cheque payable to B.C. Plans also seen at the office of the Borough Engineer, Council Offices, Surbiton. Tenders by Oct. 7.

Thorne, Yorks.—Laying of 2,302yd. of foul sewer and connections in Ellison Street and Southend for R.D.C. Documents from the Surveyor, P.O. Box No. 4, Council Offices, Thorne. Tenders by Oct. 5.

Uppingham, Rutland.—Construction of a small sewage disposal plant to serve seven houses at Wing Hollow and the laying of approximately 65yd. of 4in. iron pipes at Wing Hollow for R.D.C. Documents from the Council's Surveyor, Council Offices, Uppingham. Deposit £1 1s. Tenders by Oct. 3.

Waterford, Eire.—Ardmore town sewerage scheme for C.C. Documents from C. G. McNamara and Partners, consulting engineers, 27 Merrion Square, Dublin. Deposit £10 10s. Tenders by Nov. 15.

West Kesteven, Lincs.—Construction of a small sewage disposal works in connection with a housing site at Ingoldsby for R.D.C. Documents from the Council's Surveyor, Sandon Close, Grantham. Deposit £2 2s. Tenders by Sept. 30.

Wokingham, Berks.—Main drainage of Shinfield, stage III, School Green and Three Mile Cross areas, for R.D.C., comprising: (a) The laying of 5,100 lin. yd. of 6in. and 7in. diameter salt glazed ware pipes, and 1,025 lin. yd. of 12in. diameter spun-iron pipes, or alternatively 5,100 lin. yd. of 6in. and 8in. diameter pitch-fibre pipes and 1,025 lin. yd. of 12in. diameter spun-iron pipes; and (b) the construction of 90 manholes, two pumping stations and rising mains. Documents from the Chief Engineer, Council Offices, Shute End, Wokingham. Deposit £3 3s. Tenders by Oct. 10.

Wood Green, Middx.—Reconstruction of approx. 170 lin. yd. of surface water sewer across Avenue Gardens, Station Road, London, N.22, using 12in. g.s.w. pipes, for B.C. The works include the construction of one precast concrete manhole and the reconstruction of two existing manholes. Documents from the office of the Borough Engineer, Town Hall, Wood Green, London, N.22. Tenders by Oct. 6.

STREET LIGHTING

Belfast.—Vertical fluorescent street lighting lanterns and brackets for City Council. Documents (No. W.179) from Electricity Department, East Bridge Street, Belfast, 1. Deposit £1 1s. Extra copies may be obtained at half-a-guinea each, which sum will not be returnable. Cheques payable to the Belfast Corporation Electricity Department. Tenders by Oct. 14.

Bexhill, Sussex.—Supply and erection of 52 lighting units, Birk Dale, for B.C. Deposit £2 2s. Tenders by Oct. 22.

Cardiff.—Erection of about 1,260 class A columns, etc., contract 6, for City Council. Deposit £2 2s. Tenders by Oct. 6.

Chilton, Dur.—Supply of 21 sodium vapour and 10 tungsten lamps, brackets and auxiliary gear. The equipment will be erected under separate contract for Parish Council. Documents from R. Foster, clerk to the Council, Brida, The Crescent, Chilton, Ferryhill, Co. Durham. Tenders by Oct. 8.

Ilkley, Yorks.—Supply, erection, wiring and putting into service over a length of approx. 3,100yd. of A65, of a system of 400-watt colour-corrected mercury vapour lamps to group "A" requirements, mounted on steel columns in totally enclosed lanterns, together with all necessary control gear, fuses and brackets, etc., for U.D.C. Documents from the office of the Engineer and Surveyor, Chantry Drive, Ilkley. Tenders by Oct. 7.

Warrington, Lancs.—Provision and installation of the following class B street lighting standards for R.D.C.: Croft village scheme, 37; other parishes, 27. Documents from Engineer and Surveyor, Council Offices, Museum Street, Warrington. Tenders by Oct. 13.

INTERNATIONAL CONTRACTS

Pakistan.—Construction of two barrages (diversion dams) on the Rivers Sutlej and Ravi in West Pakistan for the West Pakistan Water and Power Development Authority of the

Republic of Pakistan: (i) Mailsi barrage on the River Sutlej, near the town of Mailsi; and (ii) Sidhnai barrage on the River Ravi, near the town of Abdul Hakim. Both the barrages are to be completed by April, 1965. The works form part of the settlement plan being financed by the Indus Basin Development Fund, which is administered by the International Bank for Reconstruction and Development. Civil engineering contractors of international repute, who are interested in tendering for the construction of these barrages, including the gates to be installed therein, should apply in writing by Nov. 30 to the Chief Engineer (Water), West Pakistan Water and Power Development Authority, The Piplas, Lower Mall, Lahore, with a copy to Coode and Partners, consulting engineers, 2 Victoria Street, London, S.W.1. Further particulars about the barrages can be obtained from either the Authority or the Consulting Engineers by Oct. 31, 1960. The intending contractors should give details of their resources, their experience in the construction of barrages or other similar works working alone and not in association with other contractors, with the value and description of each project which they have carried out, time of construction and the names of the employers and the consulting engineers responsible. The Authority expects to issue the tender documents for each barrage by Jan., 1961, to those firms who are considered to have sufficient experience and resources.

AWARDS

BUILDING AND DECORATING

(See also Housing Schemes)

Aylesbury, Bucks.—Erection of a factory at Gatehouse Estate for the New Holland Machine Co., Southern Road. Raymond White and Ridley, architects, Temple Square —J. Laing and Son, Ltd., Mill Hill, London, N.W.7. Estimated cost £310,000.

Barnsley, Yorks.—Following for B.C.: Erection of a mechanical plant store at Scout Dike—B. W. Webber (Contractors), Ltd., 150 Church Street, Kimberworth, Rotherham, £29,200 (recommended, subject to Ministry approval).

Steelwork for St. Helens Secondary Modern School—Redpath Brown and Co., Ltd., 7 Trafford Park, Manchester, 19, £3,020.

Birmingham.—Erection of multi-storey block of shops and offices along Inner Ring Road at junction with John Bright Street for the Amalgamated Engineering Union—Wates, Ltd., 1258 London Road, Norbury, London, S.W.16. Estimated cost £100,000. J. H. Madin, architect, 83 and 85 Hagley Road, Five Ways, Edgbaston; and Silk and Frazier, quantity surveyors, Portland Road, Edgbaston.

Erection of premises in Holloway Head at corner of Blucher Street for W. L. Handley, Ltd., 144-145 Suffolk Street—Morris and Jacobs, Ltd., 71 Hobmore Road, Birmingham, 10. L. F. Payne, architect, 24 Cornwall Road, Brookhouse, Walsall; and Silk and Frazier, quantity surveyors, Birmingham.

Bradford-on-Avon, Wilts.—Extension to factory for George Spencer, Moulton and Co., Ltd. Thurlow, Lucas and Janes, architects, Gower House, Place Road, Melksham—Richard Costain (Construction), Ltd., Bristol. Estimated cost £90,000. Work just commenced.

Bristol.—Construction of a maintenance depot at Bath Road for British Railways (Western Region). Work includes the conversion and re-roofing of existing locomotive sheds and the construction of reinforced concrete inspection pits, a fuel storage area, a new boiler house and a lay-by giving access to the Bath Road—Kyle Stewart (Contractors), Ltd., Ardshiel House, Empire Way, Wembley, Middx. Estimated cost £500,000.

Caithness.—Extension to the Wick High School for the Co. E.C.—Gilbert-Ash, Ltd., 28 Renfield Lane, Glasgow, £284,624; Eric W. Hall and Partners, architects, Rock House, Calton Hill, Edinburgh; Prestressed Concrete Associates, consulting engineers, 171 Victoria Street, London; J. Varming and S. Mulcahy, heating and electrical consultants, 37 Malone Road, Belfast, 9. Work just commenced.

Canterbury, Kent.—Erection of a church at the junction of Sussex Avenue and Cumberland Avenue, Spring Lane estate. John Clague, architect, Lloyds Bank Chambers, Herne Bay, Kent—H. Goodsell and Son, Ltd., 23 Watling Street, Canterbury. Work has commenced.

Clare, Suffolk.—Erection of public conveniences at The Bailey for R.D.C. H. A. Smith, engineer and surveyor—Alliston and Bareham, 65 Lt. Yeldham Road, Great

Yeldham, Essex. £1,033. Work about to commence.

Cornwall.—Erection of a four-class county primary school at Perranporth for C.C.—Rogers and Christian, Ltd., 80a Tower Road, Newquay, £32,950. Work has commenced.

Crawley, Sussex.—Construction of second phase of St. Wilfrid's R.C. School. F. G. Broadbent and Partners, architects, 13 Manchester Square, London, W.1—Rice and Son, Ltd., Stephenson Way, Three Bridges, Crawley.

Essex.—Construction of Health Services Clinic at Hutton for C.C. H. Conolly, county architect—Albert J. Smith (Hornchurch), Ltd., 31 North Street, Hornchurch.

Glendale, Northumb.—Painting of 70 post-war houses in Weetwood Avenue, and 64 houses at High Fair and Broomey Road. Wooler, for R.D.C.—R. Cormack and Co., 13 Kippylaw Estate, Seahouses, £1,281.

Grangemouth, Stirlings.—Civil engineering and building works and pipework installation at the British Hydrocarbon Chemicals Works—George Wimpey and Co., 37 Drumsheugh Gardens, Edinburgh, 3.

Kingsbridge, Devon.—Erection of a cattle selling ring, new cattle pens, the erection of covering structure over existing sheep and pig pens, and other ancillary works at the Cattle Market, Ropewalk, for U.D.C.—J. W. C. Scoble and Son, Ltd., Wallingford Road, Kingsbridge, £3,296; English Clays Lovering Pochin and Co., Ltd., 14 High Cross Street, St. Austell, £1,821; Gash and Dent, Ltd., Alresford, Hants., £1,214; and Watkins Tractors and Motors, Ltd., Quay House, Kingsbridge, £485. Work to commence Oct. 1.

Kingsclere and Whitchurch, Hants.—Improvements to a number of pre-war houses at Highclere for R.D.C.—Eades Bros., Ltd., Charlton, Hants., £6,640.

Kirkby, Lancs.—Erection of community centre for U.D.C.—Direct Labour, £10,250 (accepted); David Lesley (Contractors), Ltd., £11,114; S. Huyton and Co. (Builders), Ltd., £11,372; Triford, Ltd., £11,690; J. B. Johnson and Co., Ltd., £12,534; A. McColl and Son (Builders), Ltd., £12,796. Work commencing Oct.

Leeds.—Extension to offices at Albion Street for the Leeds and Holbeck Building Society—Higgs and Hill, Ltd., Crown Works, South Lambeth Road, London, S.W.8, £240,000. Gribbion and Foggitt, architects, 3 Park Place, Leeds, 1; and Miller and Thomas, quantity surveyors, 13 Queens Square, Leeds, 2.

Leeds.—Erection of office block in Eastgate for the National Deposit Friendly Society. Ansell and Bailey, architects, 12 Gray's Inn Square, London, W.C.1—Higgs and Hill, Ltd., 33 St. Paul's Street, Leeds, 1. Estimated cost £200,000.

Leyton, Essex.—Improvements to kitchen at Barclay County Primary School for B.C.—E. W. Clare, Kirkdale Villa, Kirkdale Road, Leytonstone, E.11, £1,388 (recommended).

Manchester.—Warehouse extensions at Streetford Works, near Manchester, for Kellogg Co. of Great Britain, Ltd., L. G. Mouchel and Partners, consulting engineers, 196 Deansgate, Manchester, 3—J. Genard and Sons, Ltd., Swinton, Lancs., £58,000.

Margate, Kent.—Construction of a pavilion at Birchington bowling green, for the Parks Committee—Operative Builders and Decorators, Ltd., Park Lane, Birchington, Kent, £2,690.

Margate, Kent.—Construction of a pavilion at Birchington Bowling Green for B.C.—Operative Builders and Decorators, Ltd., £2,690 (recommended).

Norwich.—Re-building the Glebe Hotel at Stalham for Morgan's Brewery Co., Ltd., King's Street—Tooley and Youngs, Ltd., Stalham, Norwich. Estimated cost £14,000. F. Nicholl, senior company architect, and P. Pamk and Partners, Lower Close.

Ormskirk, Lancs.—Construction of public lavatories in Moorgate for U.D.C.—J. R. Woods (Builders), Ltd., Burscough, £4,000 (recommended).

Plymouth.—Erection of a wholesale house and ancillary offices at George Street, Stonehouse, for W. H. Smith and Son, Ltd.—Dudley Coles, Ltd., Bath Road, Plymouth. H. F. Bailey, company chief architect; and Mager and Greenway, quantity surveyors, 52 Castle Street, Reading.

Portsmouth.—Following for City Council: Modernisation of 24 First Avenue and 51 Medina Road—L. V. Evans, 126 Albert Road, Southsea, £736 and £660, respectively; 65 Hulse Crescent—T. Coleborn and Son, 10 Newcastle Street, Portsmouth, £645 (recommended).

Redecorations and repairs at St. Mary's House—Direct Labour, £4,074 (recommended); Barnes and Elliott, Ltd., £4,482; Croad, Ltd., £4,963; R. W. Bailey, £4,976.

Radcliffe-on-Trent, Notts.—Remodelling of central kitchen and staff dining accommodation at Saxondale Hospital, for Shef-

field Regional Hospital Board—Bodill and Sons, Ltd., Hucknall, £3,128. Extension of contract.

Rugby, War.—Erection of shops, warehouse and two self-contained flats at Overslade Lane, for the Rugby Co-operative Society, Ltd. Press and Wright, architects and surveyors, 20 Regent Place—Foster and Dicksee, James Street, Rugby.

Rugby, War.—Alterations to premises at 274-276 Hillmorton Road, for The Rugby Industrial and Provident Co-operative Society, Ltd.—Foster and Dicksee, Ltd., James Street, Rugby, War., £8,500. Patrick G. M. Hossack, architect, 35a Regent Street, and Harry Williamson, quantity surveyor, 10 St. Matthew's Street, Rugby. Work about to commence.

St. Pancras.—Conversion of Mount Pleasant House, Kings Cross Road, London, W.C.1, into a hotel with 400 bedrooms, for Rowton Developments, Ltd.—Holland & Hannen and Cubitts (Great Britain), Ltd., 1 Queen Anne's Gate, S.W.1. Ley Colbeck and Partners, architects, Palmerston House, 51 Bishopsgate, E.C.2. John Leaning and Sons, quantity surveyors, 28 John Street, Bedford Row, W.C.1. Estimated cost £220,000.

Sandown-Shanklin, I. of W.—External painting and miscellaneous repairs to 104 houses, bungalows and flats in Sandown and Lake, for U.D.C.—T. Josey, surveyor—Island Builders, Ltd., Ryde, I. of W. (section A), £1,087; (B) £1,071; (C) £1,155.

Scarborough, Yorks.—Extensions to North Riding training college for the E.C.—William Birch and Sons, Ltd., Spen Lane, York, £18,953.

Shrewsbury, Salop.—Alterations at the Music Hall and provision of kitchen accommodation for B.C.—Price and Jacks, £10,980 (recommended).

Stratford-upon-Avon, War.—Improvement works to houses at Clopton Estate, for B.C.—Coleman and Tyas, Ltd., Victoria Road, Bidford-on-Avon, £61,500 (recommended).

Sunderland, Dur.—Site works for factory in North Hylton Road for Hepworth and Grandage, Ltd., St. John's Works, Bradford. Newrick and Blackbell, architects, 58 John Street, Sunderland—Dowsett Engineering Contractors, Durham Road, Low Fell, Gateshead. General building contract is expected to be settled by the end of the year or early in 1961.

Erection of new stores at the junction of Borough Road and Fawcett Street for Bimms, Ltd. Gordon Jeeves, architects, 61 Catherine Place, London, S.W.1—Leslie and Co., Woodland Road, Darlington.

Second stage of the Public Library, Art Gallery and Museum extension scheme for B.C.—D. and J. Ranken, Ltd., Stockton Road, Sunderland. Estimated cost £103,467.

Thedwastre, Suffolk.—Erection of a block of seven and a block of six "Banbury" garages at Steeles Road, Woolpit, for R.D.C.—Direct Labour. Estimated cost £982.

Thingoe, Suffolk.—Modernisation of 12 houses at Hepworth Road, Barningham, for R.D.C. S. M. Casson, engineer and surveyor—D. Aves, The Gables, Hinderclay, Diss, £4,268. Work commencing Oct.

Whitley Bay, Northumb.—Extension to shirt factory, including new canteen at Foxhunters Road for Stephens Manufacturers, Ltd.—R. A. Gofton and Sons, Front Street, Monkseaton, Whitley Bay.

Worcester.—Extensions to the orthopaedic department at Worcester Royal Infirmary for the Birmingham Regional Hospital Board—Thomas Broad, Ltd., Malvern, £22,972.

DEMOLITION

Barnes, Surrey.—Demolition of the squash courts at Magnolia Court for B.C.—Southern Demolition Co., £164 (recommended).

Boston, Lincs.—Demolition of Loggerheads Inn for B.C.—Direct Labour. Work commenced.

Folkestone, Kent.—Demolition of buildings at Folkestone Gas Works—Dover Erection and Demolition Co., Ltd., 30 Castle Street, Dover.

Islington.—Demolition of 61 Rupert Road and weatherproofing of adjoining property for B.C.—Gorst and Co., Ltd., 33 Floyd Road, London, S.E.7, £639 (recommended).

Sandown-Shanklin, I. of W.—Demolition and clearance of a single-cell steel-clad refuse destructor with steel chimney and steel-framed covering building at the refuse tip, Sandown, for U.D.C.—T. Josey, surveyor—W. Ball and Sons, Oakfield, Ryde, £60 (accepted); P. G. Clifford, £125. Work commencing shortly.

Stockport, Ches.—Demolition of 49-51 Bridgefield Street and 4 Brown Street for B.C.—Seaton and Bailey, £47 (recommended).

Swansea.—Demolition of 70 houses or ruins in the Llandore, Dyfatty and Mount Pleasant areas for B.C.—J. McDonnell, 5 Llanbleddian Gardens, Cardiff.

ELECTRICAL

Islington.—Provision of 10 floodlights mounted on two towers at Market Road playground for B.C.—Harland and Woolf, Ltd., North Woolwich, London E.16, £1,890 (recommended).

Northumberland.—Erection of power stations at Alnmouth and Morpeth for British Railways—Berwick Building Co., Berwick.

FENCING

Letchworth, Herts.—Provision and erection of approx. 980 lin. yd. of chain link fencing of various heights, together with ancillary works, at various sites within the urban district for U.D.C. E. L. Johnson, engineer—F. D. and E. V. Balaam, 24 Spring Drive, Stevenage, £947 (accepted); Uxbridge Fencing & Products and Co., Ltd., £963; C. Clayton and Sons, Ltd., £988; Brown and Davis, Ltd., £1,215. Work about to commence.

GAS AND WATER SUPPLY

Forehoe and Henstead, Norfolk.—Hingham, Deopham, etc., water supply for R.D.C., including the provision and laying of about 12 miles of 6in., 4in. and 3in. diameter water mains. Elliott and Brown, consulting engineers, Stanley House, Pelham Road, Nottingham—R. C. and T. Whitehead, Mansfield, Notts., £40,066 (accepted); A. J. Holloway, Ltd., £40,401; Edward Thompson, Ltd., £40,683; Biggs, Wall and Co., Ltd., £40,901; Edward J. Edwards (Norwich), Ltd., £40,794; Grocock and Day, Ltd., £41,586; J. Cooper (Construction), Ltd., £43,957; Thos. Carey and Son, Ltd., £47,218; Ford and Carter, Ltd., £47,934; H. Dye, £48,220; A. R. Cleghorn and Co., Ltd., £50,935. Work commencing Nov. 1.

Inverness.—Following for C.C.: Construction of an 8,000-g.p.d. combined filter and tank and about four miles of 3in., 2in. and 1½in. a.c. or p.v.c. piping at Tarskavaig, Sleat, Skye; also about 3,000 yd. of 2in. a.c. or p.v.c. piping at Idrigill, North-West Skye. Tarskavaig—Jan C. Hunter, Ltd., Thornliebank, Glasgow, and Gordon Brown, Mallaig, respectively.

Construction of a small stream intake, combined filter and clear water tank, and supplying and laying of about seven miles of a.c. or p.v.c. piping at Bracadale, Isle of Skye. Gordon Brown, Mallaig (subject to Ministry approval).

Llandello, Carmar.—Llanegwad and Cothi Bridge water mains extension scheme for R.D.C., comprising the laying of approx. five miles of 3in. and ½-mile of 2in. asbestos-cement water mains, together with valves and other fittings. N. E. Evans, engineer.—The Beechwood Construction Co., Ltd., Llandello, £11,783. Work to commence Oct.

Newry, Down.—Construction of a 200,000-gallon reinforced concrete service reservoir at Edenmore in the water supply scheme for Newry No. 1 R.D.C. R. Ferguson and S. McIlvern, civil engineers, 15 College Gardens, Belfast—John Sinton, Ltd., Tandragee, Co. Armagh, N. Ireland, £10,884 (accepted); McCartan and McAteer, £11,537; Dorman Bros., £11,922; McMahon Bros., £12,462. Work commencing Oct.

Saffron Walden, Essex.—Supplying and laying approx. 5,800 yd. of 6in., 4in. and 3in. asbestos-cement water main in the southern area of the district for R.D.C. J. S. Y. Molineux, engineer and surveyor—D. and H. Contractors, Cambridge, Ltd., 83 Regent Street, Cambridge, £11,281 (accepted); Biggs Wall and Co., Ltd., £11,308; Mannion Bros. (Harrow), Ltd., £11,333; Roads and Sewers, Ltd., £11,570; Wm. Sindell, Ltd., £11,815; Wm. Press and Son, £15,290; R. and C. Whitehead, £13,879. Work has commenced.

Saltash, Corn.—Laying of the Callington Road trunk main for B.C.—William Carline, Ltd., £3,933 (recommended).

HOUSING SCHEMES

Amptill, Beds.—Twenty-two old people's bungalows at Dengarth, Steppingley Road, Flitwick, for R.D.C. C. A. Lewis, engineer and surveyor—E. B. Holben, Ltd., 38 Amptill Road, Flitwick, Bedford, £23,938. Work commencing Oct. 1.

Ballymena, Antrim.—Eighteen houses at Kells for the R.D.C. McCutcheon and Wilkinson, architects, 34 High Street—David Patton and Sons, Ballymena, N. Ireland.

Barnsley, Yorks.—Following for B.C.: Eighty dwellings on various sites—Direct Labour, £94,765 (recommended, subject to Ministry approval).

Blyth, Northumb.—Housing developments at Coomassie Road for B.C. D. W. Foster, borough engineer—R. Sleightholme, Ltd., Tynemouth (five flats and five maisonnettes); T. H. Nicholson, Blyth (eight flats).

Bradford, Yorks.—Slum-clearance redevelopment scheme, consisting of 13 five-storey blocks of flats, four eight-storey blocks and

- one four-storey block, for City Council—George Wimpey and Co., £638,000.
- Braintree, Essex.**—Twenty-three Homeville traditional bungalows at six sites for R.D.C.—Duncan Cameron and Hutchinson, Ltd., Barclays Bank Chambers, Braintree.
- Brecon.**—Six houses at Coedwauncar, Sennybridge, for Housing Committee—T. F. Howells, Ltd., 83 Bartlett Street, Caerphilly, Glam., £10,005.
- Bury St. Edmunds, Suffolk.**—Four houses and four flats in Rosemary Road for B.C.—Samuel Rolfe and Sons, Ltd., Cheverley, Newmarket, Suffolk, £11,027 (recommended).
- Caerleon, Mon.**—Thirty-five houses for U.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing, Sussex.
- Crewe, Ches.**—Fourteen houses and 52 flats at Goulden Street and Badger Avenue for B.C.—Direct Labour. Estimated cost £83,847.
- Crook and Willington, Dur.**—Fifty houses on the Sunnybrow redevelopment scheme for U.D.C.—R. G. Finlay, Ltd., Ryhope, £74,079.
- Doncaster, Yorks.**—Fifty bungalows and 24 two-storey flats in Sandringham Road—Walter Dunk and Sons, Ltd., "Rosehill," Dodworth, Barnsley.
- Dulverton, Som.**—Two houses and two bungalows at Exford for R.D.C.—William Nott and Sons, Bampton, £7,986.
- Easington, Dur.**—Five houses at Moore Square and 19 dwellings on the Vicarage Estate for R.D.C.—Direct Labour, £8,129 and £30,497, respectively.
- Hartlepool, Dur.**—Twenty-six houses for B.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing.
- Heckmondwike, Yorks.**—Thirty-seven houses for U.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing.
- Helston, Corn.**—Twenty Homeville traditional flats at Vyvyan Place for B.C.—Noye Bros., Lady Street, Helston.
- Huntingdon.**—Six Homeville traditional bungalows at Great Stukeley for R.D.C.—F. B. Thackray and Co., Ltd., St. Peter's Road, Huntingdon.
- Islington.**—Dwellings, as follows, for B.C.: Twenty-two at Hillmorton Road—Rowley Bros., Ltd., Tower Works, Tottenham, London, N.17, £47,639 (recommended); Herbert Richardson and Sons, Ltd., £48,607; Gee, Walker and Slater, Ltd., £49,175; Allen Fairhead and Sons, Ltd., £52,014; Patman and Fotheringham, Ltd., £53,442; Walter Lilly and Co., Ltd., £54,792; 30 at Courtney Court (extension)—Rowley Bros., Ltd., £61,171 (recommended); Herbert Richardson and Sons, Ltd., £62,261; Patman and Fotheringham, Ltd., £62,509; Gee, Walker and Slater, Ltd., £63,888; Allen Fairhead and Sons, Ltd., £66,323; Walter Lilly and Co., Ltd., £68,725.
- Keighley, Yorks.**—Thirty-seven flats for B.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing.
- Kingswood, Glos.**—Twelve two-bedroom houses and eight single-bedroom bungalows at Hollies Crescent, contract 48, for U.D.C. W. E. H. Rendle, engineer and surveyor—J. Hackett (Kingswood), Ltd., 22 Church Road, Kingswood, Bristol, £28,390. Work commencing shortly.
- Kingswood, Glos.**—Four two-storey traditional flats and 10 houses at New Cheltenham Road and Dawn Rise, contract 45, for U.D.C. W. E. H. Rendle, engineer and surveyor—J. Hackett (Kingswood), Ltd., 22 Church Road, Kingswood, Bristol, £24,750. Work about to commence.
- Kingswood, Glos.**—Forty-two houses and flats at Pound Road, contract 47, for U.D.C. W. E. H. Rendle, engineer and surveyor—J. Hackett (Kingswood), Ltd., 22 Church Road, Kingswood, Bristol, £79,994. Work commencing shortly.
- Maelor, Flint.**—Twenty Homeville traditional houses and flats at Penley housing site for R.D.C.—Francis Roberts and Sons, Ltd., Trevor, Ruabon, Wrexham.
- Narberth, Pems.**—Four houses and four bungalows for U.D.C.—Hussey, Egan and Pickmere, Ltd., East End Works, Pembroke, £17,164 (accepted); G. V. Williams and Sons, £18,107.
- Northampton.**—Houses at the following for R.D.C.: Denton—W. E. Cockerill and Son, Milton Street, Northampton, £18,229; Kislingbury—Midland Builders (Davertry), Ltd., Ashby Road, Daventry, £17,401; Harpole—Midland Builders (Davertry), Ltd., Ashby Road, Daventry, £11,481; Great Houghton—Wright and Smith, 5 Station Road, Cogenhoe, £7,909; Bugbrooke—T. Wilson and Son, Ltd., Sheep Street, Northampton, £2,606; Milton—T. Wilson and Son, Ltd., Sheep Street, Northampton, £21,298.
- Penarth, Glam.**—(a) Eight dwellings at School House site, Plassey Street, and (b) shop and flat with lay-by at Glyndwr Road for U.D.C.—(a) Dixon and Saunders, Ltd., Kriston, 73 Cardiff Road, Dinas Powis, and (b) R. A. Vizard, Cwm Cottage, Penmark, near Barry.
- Petersfield, Hants.**—Twelve old people's dwellings, Barham Road-Station Road, for U.D.C. J. Thomas, engineer and surveyor—Powell and Lillywhite, Rowlands Castle Road, Horndean, Portsmouth, £18,481 (accepted); F. J. Minns and Co., Ltd., £17,742; R. Darby (Estates and Investments), Ltd., £24,925.
- Portsmouth.**—Following for City Council: Ten houses at Jervis Road, four at Dunsbury Way, and two at Blendworth Crescent—J. C. Nicholls, Ltd., Court Lane, Cosham, Hants., £26,853, £8,933 and £4,466, respectively (recommended).
- Thirty-six flats and 14 garages at Southampton Road, Wymering—J. V. Figgins (Builders), Ltd., 48 George Street, Portsmouth, £64,908 (recommended); Basford and Son (Contractors), Ltd., £65,865; Hawkins Bros. (Gosport), Ltd., £72,808; Henry Jones and Son (Portsmouth), Ltd., £74,903; Portsmouth, Gosport and District Builders' Guild, Ltd., £76,123.
- Six flats and three garages at Alhambra Road—Portsmouth, Gosport and District Builders' Guild, Ltd., 28a Kingston Road, Portsmouth, £11,812 (recommended); Enfin, Ltd., £12,033; E. and A. Sprigings, Ltd., £12,204; Henry Jones and Son (Portsmouth), Ltd., £12,230; Cortis and Hankins, Ltd., £12,311; Johns and Harris, £12,619; Basford and Sons (Contractors), Ltd., £12,817; A. E. Porter and Son, Ltd., £13,266; W. J. Waldron, £13,970.
- Prudhoe, Northumb.**—Thirty-three houses at West Wylam for the U.D.C. J. M. Angus, architect, 3 Gallowgate, Newcastle upon Tyne—Wimpey and Co., Ltd., Orchard House, Fenwick Terrace, Newcastle upon Tyne.
- Salisbury, Wilts.**—Sixty-four dwellings and five garages at Essex Square Estate for City Council—John Prichard, Ltd., Firs Road, Winterslow, Salisbury, £83,477 (subject to Ministry approval).
- Shaftesbury, Dorset.**—Ten bungalows for R.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing, Sussex.
- Shrewsbury, Salop.**—Six old people's bungalows at Mount Pleasant Estate for B.C.—M. A. Boswell (Contractors), Ltd., 124 Compton Road, Wolverhampton, £7,797 (recommended).
- Washington, Dur.**—Eighty-nine houses with roads and sewers at Village Lane for the U.D.C.—J. and T. Robson (Builders), Ltd., Washington, £141,875.
- West Bridgford, Notts.**—Twenty-eight aged persons' flats and communal room at Rugby Road and 16 flats at Bryron Road for U.D.C.—Homeville Builders, Ltd., Crauford Rise, Maidenhead, Berks. Estimated cost £53,372.

PLANT AND MECHANICAL TRANSPORT

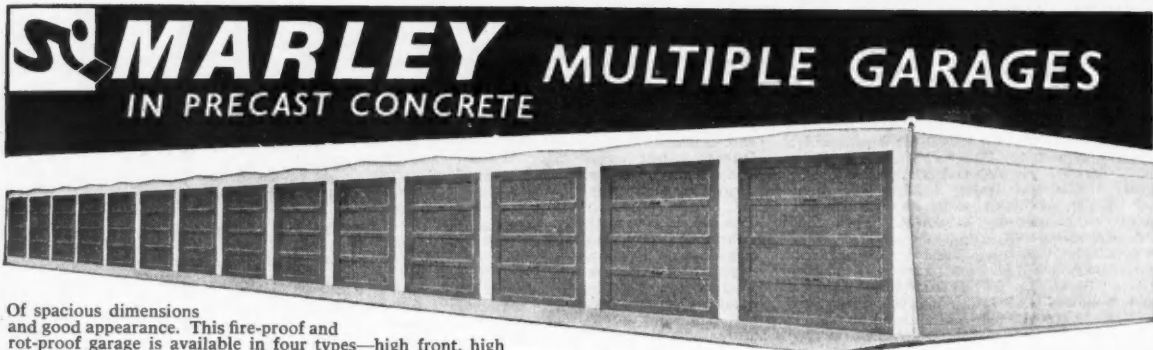
- Barnes, Surrey.**—Supply of the following for B.C.: Two Karrier Bantam lorries—Rootes, Ltd., £1,754; two bulk gritting bodies for fitting to Karrier Bantam lorries—Atkinson Agricultural Appliances, Ltd., Enterprise Works, Clitheroe, Lancs., £880 (recommended).
- Barnsley, Yorks.**—Supply of a Massey-Ferguson tractor for B.C.—Samuel Wilson and Son, Ltd., Sheffield, £1,226 (recommended).
- Islington.**—Supply and delivery of four Karrier Bantam tipper trucks with a carrying capacity of not less than 3 tons for B.C.—Ray Powell, Ltd., Eastern Avenue, Ilford, Essex, £3,675 (recommended).
- Portsmouth.**—Supply of a Bray 450TF four-wheeled tractor shovel for City Council—W. R. Selwood, Ltd., Bournemouth Road, Chandler's Ford, Eastleigh, £3,303 (recommended).
- Stratford-upon-Avon, War.**—Supply of a rear loader refuse collecting vehicle for B.C.—Shelvoke and Drewry, Ltd., Letchworth, Herts., £2,660 (recommended).

PLAYING FIELDS, PARKS, ETC.

- Chippenham, Wilts.**—Erection of a room for the Bowls Club and Tennis Club for B.C.—Downing, Rudman and Bent, Ltd., Spanbourne Avenue, Chippenham, £973 (recommended).
- Portsmouth.**—Removal of soil from the old Western Road allotments to new allotments and other spaces for City Council—W. G. Privett and Sons, Ltd., Lower Drayton Lane, Cosham, Portsmouth, £1,201 (recommended).

RAILWAY ENGINEERING

- British Railways.**—Following contracts placed: North-Eastern Region:
- Renewal and widening of Bridge No. 106, Salters Lane North, Darlington—Cleveland Bridge and Engineering Co., Ltd., Darlington.
- Provision of staff accommodation and amenities at Greensfield Motive Power Depot, Gateshead—James R. Rutherford and Sons, Ltd., Newcastle.
- Supply of a Dawson axlebox washing machine for Springhead Wagon Works, Hull—Drummond-Asquith, Ltd., Birmingham.
- Provision of a JCB4 self-mobile excavator for the chief civil engineer's department—Hergarth and Co., York.
- Provision of a Herbert 47V vertical miller and equipment for the Locomotive Carriage and Wagon Development Unit at Stoope-dale, Darlington—Alfred Herbert, Ltd., Coventry.
- Provision of machine tools and equipment for the Locomotive Carriage and Wagon Development Unit, Stoope-dale, Darlington—Newall Group Sales, Ltd., Peterborough, and the Société Genevoise, Ltd., Newport Pagnell.
- Provision of a one-ton battery-operated mobile crane and ancillary equipment for



Of spacious dimensions

and good appearance. This fire-proof and rot-proof garage is available in four types—high front, high back, back-to-back and stepped with Marley up-and-over or traditional timber doors. Low initial cost. Virtually maintenance free. Marley will supply and deliver only or supply and erect. Installed for hundreds of Local Authorities. Site work can also be undertaken, if required. We shall be pleased to submit quotations on request. Marley make the best garages.

MARLEY CONCRETE LIMITED, Dept. M1/4, Peasmarsh, Guildford, Surrey (Head Office). Guildford 69171. Shurdington, nr. Cheltenham, Glos. Shurdington 334/5. Hatchpond Road, Waterloo, Poole, Dorset. Broadstone 911/2. London Showrooms: 251 Tottenham Court Road, W.1.

Bradford Valley Goods Depot—Ransome Sims and Jefferies, Ltd., Ipswich.

Improvements to houses 1-18, inclusive, Railway Cottages, Thirsk—Walter Thompson, Ltd., Northallerton.

Repairs to Bridges 41 and 43 at Marsh Lane, Leeds—F. and J. Watkinson, Bradford.

Alterations and strengthening of the superstructure of Bridge No. 39, Cod Beck, between Sessay and Thirsk, on the main line north of York—E. Davis (Fixers), Ltd., York.

Provision of lubricating oil and compressed air facilities at Greensfield Motive Power Depot, Gateshead—Steels Engineering Installations, Ltd., Sunderland.

Demolition and reconstruction of Bridge No. 64 at Marske, on the Middlesbrough-Saltburn line—Tarslag, Ltd., Stockton-on-Tees.

Construction of roadways at Crofton Permanent Way Depot, near Wakefield—N. W. Dunn and Co., Ltd., York.

RIVER AND FLOOD PREVENTION WORKS

Suffolk.—Site investigation as part of comprehensive improvement of stretch of the Gipping, from Stoke Bridge to Princess Street Bridge, for the Land Drainage Committee of the East Suffolk and Norfolk River Board—George Wimpey Co., Ltd., 26 Hammersmith Grove, London, W.6, £4,582.

ROADS, BRIDGES AND SITE WORKS

Arndol, Notts.—Supply and spraying only of about 7,000 gallons of tar on roads within the district for U.D.C. L. H. Roxby, engineer and surveyor—Bristowes Tarvia Contracting, Ltd., Dysart Road, Grantham, Lincs., 1s. 7d. per gallon.

Barnes, Surrey.—Following for B.C.: Converting into three hard tennis courts the two existing grass tennis courts at Rocks Lane Recreation Ground—Ernest Doe and Sons, Ltd., Fyfield, Ongar, Essex, £1,943; laying of mastic asphalt surfacing at the junction of Upper Richmond Road West with Clifford Avenue—Val De Travers Asphalt, Ltd., 21 Old Bailey, London, E.C.4, £900 (recommended).

Barnet, Herts.—Taking up and re-laying of approx. 7,500 sq. yd. of precast concrete slab paved footways in various roads within the district for U.D.C.—Webb Contractors, 42 Southbury Road, Enfield.

Bingley, Yorks.—Reconstruction of footpaths and carriageway in Main Street for B.C. and roads and sewers for S. Cline (Builders), Ltd., on the Southway Estate at Eldwick—A. E. Morris (Yorkshire), Ltd., Russell Street Chambers, Bingley.

Burnham-on-Sea, Som.—Reconstruction of two streets at Highbridge, contract 36, for

U.D.C. G. Harvey Mayhew, engineer and surveyor—W. and J. Glossop, Ltd., Exhibition Way, Pinhoe Trading Estate, Exeter, £5,180. Work to commence Oct.

Carmarthen.—Following for B.C. J. V. Evans, borough engineer: Site works, Crispin Avenue and Russell Terrace garage sites—H. B. Thomas, Brewery Road, Carmarthen; construction of an embankment, 173 yd. of 36 in. and 33 in. storm culverts, 1,706 yd. of 15 in. to 6 in. sewers, and 6,300 sq. yd. of carriageway, water mains, etc., in advance preparation works at Waunago housing site, stage I—T. Gallagher and Son, 4 Oaklands Drive, Bridgend, Glam. (subject to Ministry approval).

Easington, Dur.—Extensions to caravan site at Crimdon Park, including site works, extending sewers, water, gas and electric mains, building sanitary units and reception offices for the R.D.C. R. R. Lumsden, surveyor—Direct Labour, £23,808.

Ebbw Vale, Mon.—Construction of roads, sewers, footways, etc., at Rassau housing site for U.D.C. J. M. Davies, engineer and surveyor—Ware Construction Co., Ltd., 125 Pembroke Road, Clifton, Bristol.

Havant and Waterloo, Hants.—Making-up of part of Jessie Road, Bedhampton, for U.D.C. The works comprise excavation and construction of 465 sq. yd. of footways surfaced with hot-rolled asphalt, together with repairs to kerbs and carriageway, and ancillary works—J. W. Millar and Sons, 7 Weyhill Close, Leigh Park, Havant.

Isle of Ely.—Construction of a footbridge at Guyhirn Bridge for the Highways Committee—W. and C. French, Ltd., South Brink, Wisbech, Cambs., £2,403.

Kirkby-in-Ashfield, Notts.—Construction of roads, footpaths and sewers at Maple Crescent and Box Crescent housing estate, off Sutton Middle Lane, for U.D.C. P. G. Shaw, engineer and surveyor—Herbert Bagdaley, Ltd., Baums Lane, Mansfield, Notts., £3,536. Work about to commence.

Kirkby, Lancs.—Making-up North Park Road and South Park Road for U.D.C.—Charles L. Warren, Ltd., 78 St. Paul's Road, Wallasey, North Park Road and South Park Road, £4,593 and £5,779, respectively (accepted); Sefton Building Co., Ltd., £4,720 and £5,791; John McGeoch and Sons, Ltd., £5,247 and £6,423; Direct Labour, £4,850 and £5,999. Work commencing Sept. 26.

Margate, Kent.—Construction of roads, sewers and garage sites at Millmead Road housing estate (stage I) for B.C.—Direct Labour (recommended). Estimated cost £12,326.

Newcastle upon Tyne.—Reconstruction of railway bridge, near Heaton, on the Newcastle-Berwick line, for British Railways—Cleveland Bridge and Engineering Co., Ltd., Darlington.

Newport, Mon.—Construction of an access road to the Court Farm treatment works

for B.C.—R. C. Hillman, Ltd., Castle Works, Pentrych Road, Taffs Well, Glam, £8,021 (recommended).

Northumberland.—Precast units for reconstruction of a bridge near Luckier, on the Newcastle-Berwick line, for British Railways—Tarslag, Ltd., Stockton-on-Tees.

Preston, Lancs.—Supplying and laying of approx. 8,200 sq. yd. of hot-rolled asphalt in Blackpool Road, together with heating and planing and other preparatory work, for B.C. E. H. Stazicker, borough engineer—Trinidad Lake Asphalt Co. (North Western), Ltd., India Buildings, Water Street, Liverpool, 2. Work commencing Dec.

Portsmouth.—Reconstruction and widening of Arundel Street (in two sections) and minor improvements at Lion Terrace for City Council—Direct Labour (recommended).

Rochester, Kent.—Construction of artificial stone slab footpaths, together with vehicular access crossings and grass verges, at Wilson Avenue for W. E. R. Randall and Sons—Hodsons, Ltd., 17 Wrotham Road, Gravesend, Kent.

Staffordshire.—Widening of the Alderbrook County Bridge, which is situated on the A.50 road, at a point three miles north-west of Burton-on-Trent, for C.C. The work comprises the widening of the existing masonry arch bridge by the construction of a slab deck (using rolled steel beams encased in concrete) and strutted abutments, having a clear span of 28 ft. and a width of 9 ft. F. Jepson, county surveyor—W. E. Owen (Builders and Contractors), Ltd., Brookhouses, Cheadle, Staffs. Work commencing Oct.


Stockport, Ches.—Site works for 39 garages at Bridge Hall, Pollitts Avenue and Truro Avenue, and provision of hard-standing for heavy vehicles off Truro Avenue for B.C.—Lowe, Millward and Scully, 6 Rostherne Road, Wilmslow (recommended).

Sunderland, Dur.—Following for B.C.: Construction of access roads to 20 garage sites on various housing estates—Edwin Clarkson, Ltd., East Boldon, £32,148; construction of footpaths in the Howick Street redevelopment—Smith Brothers, Beachwood Terrace, Houghton-le-Spring, £3,554.


Swansea.—Road and sewer works in connection with the Sketty Park housing site, part 2, for B.C. R. D. Moody, borough engineer and surveyor—T. Gallagher and Son, Ltd., 4 Oaklands Drive, Bridgend, Glam., £65,686. Work to commence Nov.

SEWERAGE, SEWAGE AND REFUSE DISPOSAL

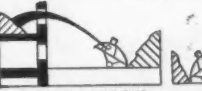
Banbury, Oxon.—Construction of the Hornton sewerage and sewage disposal scheme for R.D.C.—R. A. M. Crowther, Overthorpe Road, Banbury, £24,622 (accepted); T.H. Contractors, Ltd., £28,348; Hinkins and Frewin, Ltd., £26,108.




PIPELAYING




UNLOADING LORRIES




THROUGH WINDOWS




OVER OBSTACLES



LOADING SHIPS




IN POWER STATIONS




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OVER DYKES



LOADING WAGONS

VAL DE TRAVERS

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LONDON · BARROW · BIRMINGHAM · CANTERBURY · EXETER · GLASGOW · LINCOLN · LIVERPOOL · MANCHESTER · NEWCASTLE

Denholme, Yorks.—Extension to the Whalley Lane sewage disposal works for U.D.C.: Extensions—R. Fulwood, £3,555 (accepted); Talsom Construction Co., Ltd., £5,318; ejector plant—Hughes and Lancaster, £920 (accepted); Pulsometer, Ltd., £1,104; Tuke and Bell, Ltd., £1,046; Adams Hydraulics, Ltd., £1,603 (subject to Ministry approval).

Diss, Norfolk.—Construction of following for U.D.C.: (a) Approx. 35yd. of 24in. diameter concrete sewer, together with special man-holes and connections to existing sewers; (b) approx. 780yd. of 27in. diameter concrete sewer and manholes; (c) some minor alterations to the treatment works. John Taylor and Sons, consulting engineers, Artillery House, Artillery Row, London, S.W.1—Tilbury Construction Co., Ltd., Twyford, Berks., £18,581.

Dublin.—Laying of sewers for proposed university buildings at Stillorgan Road for the University College. Nicholas O'Dwyer, Son and Partners, consulting engineers, 6 Burlington Road, Ballsbridge, Dublin—H. K. McDermott, Frankfort Works, Dundrum, Co. Dublin.

Gloucestershire.—Surface water drainage at Whittucks Road, Hanham, near Bristol, for C.C., including the construction of approx. 1,500yd. of surface water sewer (15in. to 33in. diameter pipes), 18 manholes and ancillary works. R. A. Downs, county surveyor—Smiths Plant Hire and Contractors (Cheltenham), Ltd., Southam Court, Prestbury Road, Cheltenham. Work about to commence.

Hungerford, Berks.—Construction of a new sewage disposal plant to serve four houses at Hazlewick, Inkpen, for R.D.C. E. L. Hawkins, surveyor—A. E. Butler, 6 Paynes-down Road, Thatcham, Berks., £940. Work commencing Nov.

Newark, Notts.—Coddington sewerage and sewage disposal scheme for R.D.C., comprising the construction of approx. 3,400yd. of 6in. diameter concrete and glazed stone-ware pipe sewers, 1,600yd. of 5in. diameter spun-iron rising main, together with man-holes and other appurtenant work and two pumping stations—Elliott and Brown, consulting engineers, Stanley House, Pelham Road, Nottingham—Richardson and Cooney, Ltd., 6 Beech Avenue, Mapperley, Nottingham, £28,048.

Oakham, Rutland.—Laying of approx. 4,100yd. of 6in., 9in., 12in., 15in. and 18in. diameter concrete tube, cast-iron and steel sewers, together with manholes, and the construction of five sludge drying beds and other small modifications at the sewage treatment

works for U.D.C. Pick, Everard, Keay and Gimson, consulting engineers, 6 Millstone Lane, Leicester—G. F. Tomlinson and Sons, Ltd., City Road, Derby, £28,470 (accepted); Crawshaw, Robbins and Co., Ltd., £30,392; Storton Partners, Ltd., £32,695; Stamford Construction, Ltd., £32,960; Judkins (Coated Macadam), Ltd., £34,694; Brooks and Johnson, Ltd., £37,913. Work commencing Oct.

Salisbury, Wilts.—Civil engineering works for a new sewage disposal works at Peter's Finger for City Council. H. Rackham, city engineer—Mears Bros., Ltd., 154-158 Sydenham Road, London, S.E.26, £715,226 (accepted); A. E. Farr, Ltd., £730,428; William Moss and Sons, Ltd., £752,177; Campbell and McGill, Ltd., £798,213; M. J. Gleeson, Ltd., £874,710; John Laing and Son, Ltd., £883,886; Reed and Mallik, Ltd., £996,701; Hussey, Egan and Pickmere, Ltd., £999,297. Work about to commence.

Stratford-upon-Avon, War.—Supply and erection of the following machinery and mechanical equipment for the sewerage and sewage disposal scheme for B.C.: Pumping equipment—Pulsometer Engineering Co., Ltd., Oxford Road, Tilehurst, Reading, £24,189; screening equipment—Hartleys, Ltd., Kearsley Chambers, Stoke-on-Trent, £6,570; detritor equipment—Dorr Oliver and Co., Ltd., Abford House, Wilton Road, London, S.W.1, £3,150; recording instruments—The British Pitometer Co., Ltd., 52 Minerva Road, London, N.W.10, £1,330; aluminium alloy scraper mechanisms—E. W. Farrer, Ltd., Welby Road, Birmingham, 28, £9,448; filter distribution equipment—Adams Hydraulics, Ltd., Peaseholm Green, York, £5,116; digester equipment—Ames Crostna Mills, Ltd., Moss Iron Works, Heywood, Lancs., £9,757 (recommended).

Sunderland, Dur.—Concrete protection works to the Roker Gill outfall sewer for B.C.—Direct Labour, £3,898 (in lieu of previous tender).

STREET LIGHTING

Gillingham, Kent.—Supply of transformers, capacitors, and lamps for 140-watt sodium for B.C.—Abacus Municipal, Ltd., Sutton-in-Ashfield, Notts.

Wortley, Yorks.—Street lighting at Ecclesfield, Stannington, Chapelton, and High Green, near Sheffield, for R.D.C.: Installation of colour-corrected mercury street lighting schemes, complete, as follows—(scheme 54) Ecclesfield bus route—67 125-watt lamps on 20ft. columns; (55) Stannington bus route—

60 80-watt lamps on 15ft. columns; (57) Chapelton to High Green—74 125-watt lamps on 20ft. columns; (58) (part 1) Chapelton—29 250-watt lamps on 25ft. columns. Concrete columns are specified, with some special decorative columns which may be of materials other than concrete, for certain sections of schemes 54, 55 and 57. Arthur Wikeley, engineer and surveyor. Schemes 54 and 57—Concrete Utilities, Ltd., Manchester; scheme 55—Engineering and Lighting Equipment Co., St. Albans; scheme 58 (part 1)—A.E.I. Lamp and Lighting Co., Ltd., Leeds. Work commencing Nov.

GOVERNMENT CONTRACTS

Air Ministry.—Contracts to the value of £4,000 or over for the week ended Sept. 9:

Building work: Wittering, Northants.—Robert Marriott, Ltd., Midland Works, Rushden, Northants.

Dismantling, transporting and re-erection of timber hutting: Benbecula and Uist, Hebrides—Scottish Tarmacadam, Ltd., 44-52 Bilbair Street, Glasgow, C.5.

Provision of insulation lining and erection of plant rooms: Heywood, Lancs.—F. Parkinson, Ltd., Mowbray Drive, Blackpool, Lancs.

Surfacing work to existing paved areas: Lyneham, Wilts.—Amey's Asphalt Co., Ltd., Sutton Courtenay, Abingdon, Berks.

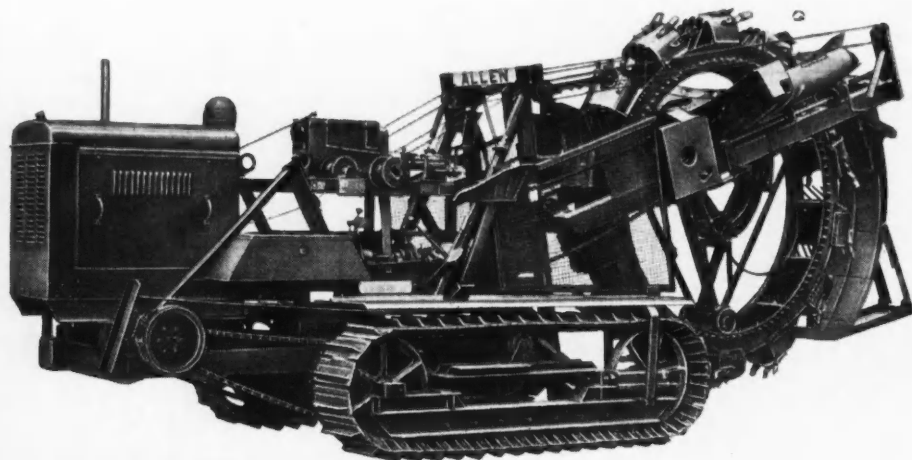
Painting work: Faldingworth, Market Rasen, Lincs.—Singelton Decorators, Ltd., 12 Priory Place, Doncaster, Yorks.; Felixstowe and Bawdsey, Suffolk—T. E. Cundy and Son, Ltd., 28 Belgrave Road, Leicester; North Luffenham (etc.), Rutland, Melton Mowbray, Leics., and various R.A.F. Stations in Northants—William Herd and Co., Ltd., 95 Baker Street, London, W.1.

Supply and installation of air-conditioning plant: Khormaksar, Aden—Brightside Heating and Engineering Co., Ltd., Vincent House, Vincent Square, London, S.W.1.

Post Office.—Contracts for duct laying, etc., works to the value of £4,000 and over placed during the week ended Sept. 10:

J. Mannion and Co., 57 Guildhall Buildings, Navigation Street, Birmingham, 2; The Norwest Construction Co., Ltd., Litherland, Liverpool, 21; J. C. Shields, Ltd., Preston Road, Lytham, Lytham St. Annes, Lancs.; Alexander Thomson and Co. (London), Ltd., 45a Kensington High Street, London, W.8.

ALLEN WHEEL TRENCHER MODEL 140



"FAST" TRENCHING

Combining speed of digging with dependability, the "140" has a range of traction speeds from .5 to 37.3 ft. per minute, and will cut clean, fast trenches, 17½ in. to 30 in. wide, to a maximum depth of 5 ft. 6 in. 16 in. smooth crawler tracks, with cleats, give a ground pressure of only 5.7 lbs. per sq. in.

Full details from U.K. manufacturers and distributors:

JOHN ALLEN & SONS (OXFORD) LTD., Cowley, Oxford



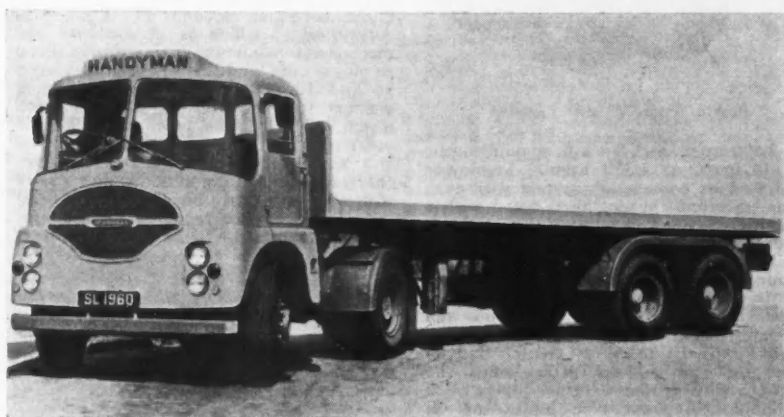
1960 COMMERCIAL MOTOR SHOW

A feature of this year's biennial Commercial Motor Show, which opens at Earls Court tomorrow, will be the immense variety of exhibits among vehicles, ranging in size from miniatures with 10in. wheels to 20-ton heavy duty units. The Exhibition forms the largest single demonstration of commercial road transport in the world, and this year there will be 422 stands on which will be displayed a total of 441 vehicles. Accessories, components and transport service equipment will occupy a further 118,000 sq. ft. of space. Brief descriptions of some of the new vehicles and items of interest are given in the following pages.

THE new range of heavy duty vehicles recently announced by **Leyland Motors, Ltd.**, are being represented by two exhibits. Three basic models comprise the range: The four-wheel Beaver, the six-wheeled Hippo, and the eight-wheeled Octopus. These are sub-divided into 15 different types of vehicle. The range consists of high-performance cab-over-engine haulage, tipper and tractor models. They are now available with right-hand driving controls, and in the near future they will be produced with left-hand controls for the export market. In addition to the alternative diesel engines that can be fitted, they have a five-, six- or seven-speed gearbox, hub reduction single-drive or double-drive rear bogies for multi-wheelers with alternative systems of suspension, and easy-access "Vista-View" cabs in all-steel or in reinforced glass fibre on a steel sub-frame. The new Power-Plus engines installed in the trucks are the O.600, a 597 cu. in. (9.8 litres) unit developing a net installed horsepower of 140 at 1,700 r.p.m. with a torque of 438lb./ft. at 1,200 r.p.m., and the O.680, a 677 cu. in. (11.1 litres) unit for fast motorways use and for conditions where high performance is the main consideration. This develops 200 net installed horsepower at 2,200 r.p.m., the torque being 548lb./ft. at 1,200 r.p.m. Power-assisted steering, clutch and handbrake are standard fittings throughout the range, and all models are equipped with air brakes. Because of space restriction, only the Beaver 14B.17 tractor and the Octopus 240.10 haulage vehicle are being exhibited from the new range, although a Standard Comet CS3.2R tipper with a special 7 cu. yd. body and a Super Comet truck with Power-Plus 400-S diesel

engine are also on the stand. A further new vehicle which the company are showing is the Lion single-deck passenger chassis with the rear-mounted Power-Plus O.680 diesel engine.

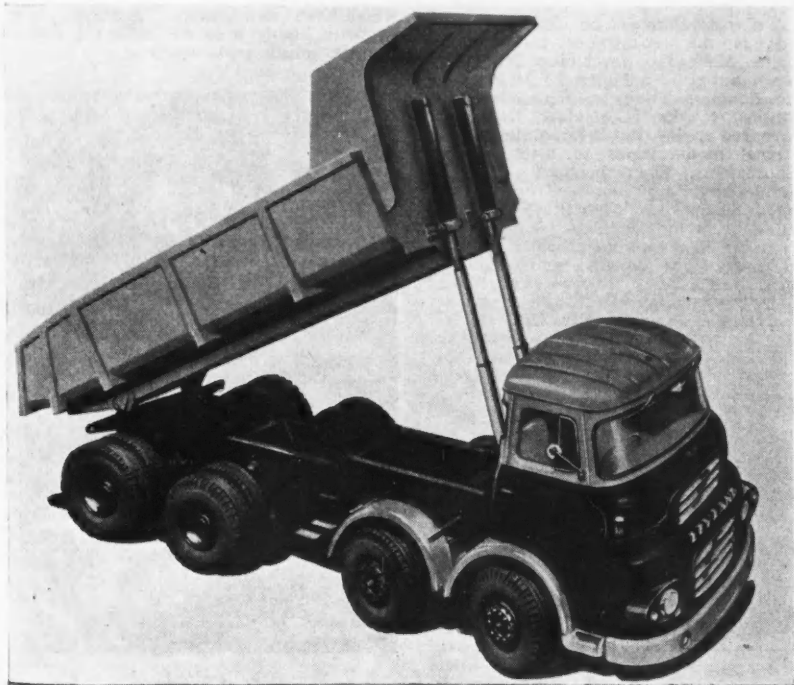
The vehicle is fitted with a 161-h.p. Leyland 0.680 six-cylinder diesel engine, double reduction epicyclic axle, and a six-speed gearbox mounted in unit construction with the engine and hydraulically



The Handyman matched articulated outfit

A recent extension to their range is being exhibited by **Scammell Lorries, Ltd.**, in the Handyman matched articulated outfit of 24-tons gross vehicle weight. The 8ft. 6½in. wheelbase motive unit and forward control driving position enables a new design semi-trailer to be offered with a straight front and a clear platform length of 27ft.

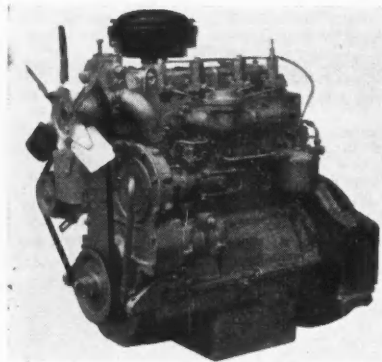
operated clutch. Suspension is by semi-elliptic springs, with assistance from shock absorbers, and safety is ensured by three braking systems. Air-pressure foot brakes operate on all wheels, including those on the semi-trailer. A hand reaction valve operates the semi-trailer brakes independently, and there is a hand lever operating a ratchet-type brake on the driving axles. Special attention has been given to the design of the cab, which is constructed of reinforced plastic glass fibre. The semi-trailer is a completely new model with all-welded frame using pressed steel channel sidemembers 15in. by 3½in. by 5/16in. at the main section. It is shown mounted on a new rubber suspension bogie, but alternatively, air suspension is available. The bogie is non-reactive and braking is spread evenly over all four wheels which are held in close contact with the ground, thus providing maximum stopping power. A heavy duty automatic coupling fitted to the Handyman will be demonstrated on the stand. Tractors, mechanical horses and specialist tankers are also being displayed by the company.



Octopus 240.13 heavy duty tipper, an example of the new Leyland range

Goodyear Tyre and Rubber Company (Great Britain), Ltd., are exhibiting for the first time a new design in a new tyre, the Super Road Lug. With a tread pattern scientifically designed to give the utmost performance for both on and off the road service, the new Super Road Lug with its extra thick, specially compounded tread, is available in the Goodyear 3-T construction. Also on view for the first time is the recently introduced Low Loader Tyre with sidewall scuff bands. The tyre incorporates a band of tough rubber moulded on to both sidewalls, with the object of minimising the effects of kerbside chafing and scuffing. A depth indicator is incorporated in the scuff band by means of which the rate of sidewall wear can be determined.

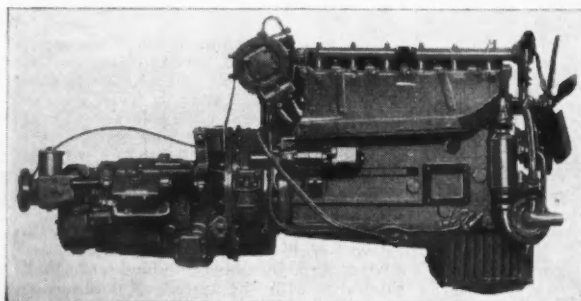
A new four-cylinder, 63-b.h.p. diesel engine will be included among the wide range of **Perkins Group** power units on view. This is the Perkins Four 203, already announced in industrial engine form, which will be shown on the stand of at least one motor manufacturer. The vehicle version of the Four 203 develops its maximum h.p.



Perkins Four 203 diesel engine

at 2,600 r.p.m. and has a maximum torque of 147lb./ft. at 1,350 r.p.m. Employing the Perkins combustion system with twin hole injectors, the engine is fitted with a distributor-type fuel pump incorporating a hydraulic governor. Provision is made for a rotary exhaust, gear-driven and mounted beneath the fuel pump. Features of the engine include chromium-plated steel, thin wall liners pressed into the cylinder block; cold-rolled crankshaft rear main journals to give greater fatigue strength; and oilways drilled into the crankcase to reduce external piping to a minimum. A rotor type lubricating oil pump is gear-driven off the crankshaft and supplies oil to the main oil gallery via a full flow filter. The Four 203 has a 3.6in. bore, a 5in. stroke and 203.5 cu. in. capacity.

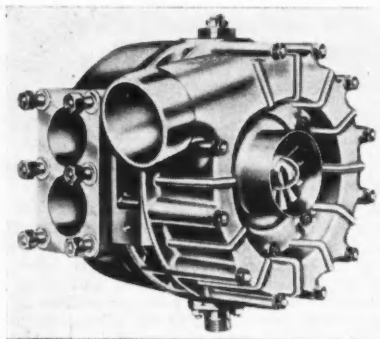
Morris Commercial Cars, Ltd., are showing publicly for the first time three new versions of Morris Commercial vehicles. The J.2 15cwt. van is now available with double doors on the nearside to facilitate speedy loading. As examples of tipping equipments which may be fitted for customers as standard equipment while the vehicle is being built, a 7-ton 120in. wheelbase truck with Edbro tipping equipment and body is displayed, and another, also of short-wheelbase but with Telehoist equipment, is on view in the demonstration park. The former has a single-speed rear axle (6.66:1 ratio) and five-speed gearbox. A third 7-tonner and a prime mover complete the medium-weight vehicles on the stand. The 7-ton LWB platform truck has power steering and an Eaton 16802 two-speed axle. The prime mover, powered by the 105 b.h.p. 5.1 litre diesel engine has a Scammell Mk. II coupling, Eaton 1350 two-speed axle and optional 7.50 x 20-ply tyres.



Foden 6-cylinder turbo-charged engine

On show for the first time by **Dunlop Rubber Co., Ltd.**, are two new dual-purpose tyres known as the RK8 and RK9, designed to eventually replace, in a limited range of popular sizes, the Roadtrak Major. The RK8 tyre has a very deep pattern and thick tread consisting of a non-ribbed design with interlocking segments. With no circumferential grooves, the tyre is claimed to give great resistance to cracking, cut extension and tearing. Basically, the RK9 differs from the RK8 in that the pattern is a three rib design instead of a bar design, the wide ribs offering resistance to irregular wear and providing long mileage. Additionally the broken studded type of shoulder provides a substantial measure of traction for soft ground.

A representative selection of diesel injection equipment and electrical equipment for public service and commercial vehicles is on view by **C.A.V., Ltd.** New items include sectioned models of the C.A.V. turbocharger, which is claimed to give increases in maximum engine torque of up to 60 per cent. and fuel savings of between 10 and 12 per cent.; the type F paper element fuel oil filter for diesel engines, which eliminates the bowl found on the older type of filter; two alternators of 7in. and 8in. diameter, designed for battery charging and lighting systems, and shown with suitable control boards and rectifiers; and a transistorised regulator for use with the 7in. alternator, eliminating contacts and moving parts.



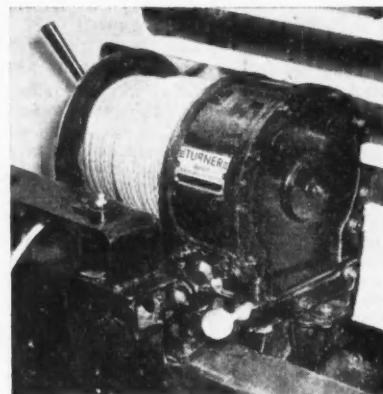
C.A.V. Turbocharger

A new development on view by **Fodens, Ltd.**, is the six-cylinder turbo-charged engine Mark IV, developing 210 b.h.p., shown powering a Foden FED6/30 heavy duty dumper. The new engine is basically identical to the FD.6 Mark III blower scavenged engine, but incorporates various internal modifications to meet changed requirements. The turbocharger, of C.A.V. manufacture, is so mounted as to avoid increasing the overall length of the engine and delivers air to the scavenge blower via an air-to-air intercooler which is placed in front of the normal engine radiator. The scavenge blower is somewhat reduced in size but is retained to produce stability of running and rapid acceleration. Devices

are incorporated to avoid excessive exhaust smoke during acceleration and to enable a wide variety of turbocharger matching conditions to be met, so as to enable the characteristics to be tailored to the particular application as required. The weight of the six-cylinder engine, less electrical equipment but complete with fuel and lubricating oil filters and engine mount-

ings, including the intercooler is 1,420lb. Maximum torque of the Mark IV is 550lb.-ft. giving a weight of 2.58lb./lb.-ft. against the Mark III figure 365lb.-ft. torque giving a weight of 3.4lb./lb.ft. Dimensionally, the height of the new unit has been increased by 8in.

Among the examples of various types of winches on the stand of **Turner Manufacturing Co., Ltd.**, Wolverhampton, the Turner 2,500lb. winch is being exhibited

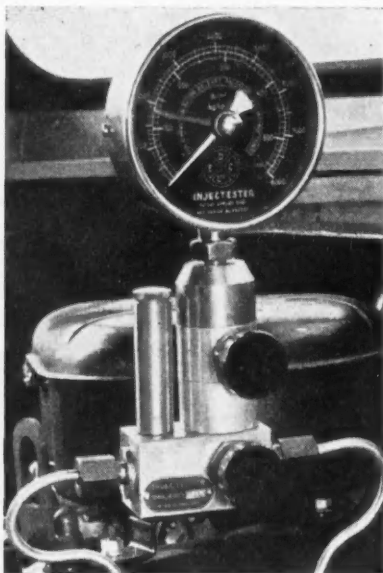


The Turner 2,500lb. winch

for the first time. A feature of this equipment is that the winch drive can be engaged or disengaged with the engine running.

Michelin Tyre Co., Ltd., are exhibiting their latest sizes of tyre, the 8.25-17 X and the 7.00-16 X. Also on display is a 9.00-20 X tyre, renewed by the Michelin Rebuildex process.

The new Mark II Injectester, being shown by **Dunedin Engineering Co., Ltd.**, has been developed as a lighter and more compact instrument for testing and tuning diesel engines. The weight is now 5lb. as compared with the 11lb. of the Mark I, and the equipment is supplied with a single set of pipes already assembled for immediate application by the operator. Also on view is the Mark II Diestester, which has been redesigned, and is claimed to be a highly accurate tester of diesel compression.



Mark II Injectester

Pilot Works, Ltd., London, are displaying vehicles equipped with tipping gear and incorporating a number of special features. An A.E.C. Mammoth Major G6RAW FC, equipped with power-operated hydraulic end tipping gear of the U6 twin ram underbody type to tip 12 tons with 55 degrees angle of tip, features a new model heavy duty high-speed combined take-off and pump unit, and chromium plated inner rams. A warning light system in the cab indicates when the body is elevated off the chassis. Another model is the Atkinson M645LW FC chassis to tip 10 tons, and fitted with detachable two-piece sides with 16in. extension boards to the sides, increasing the capacity to 16 cu. yd. A Foden chassis with an 11ft. 10in. wheelbase has the Model F.10 twin ram underbody type fitting on the outside of the chassis frame to tip 18 tons.

Trailers being exhibited for the first time by **Scottorn, Ltd.**, New Malden, Surrey, include examples of the new Fezzan range, developed especially for operations in difficult terrain. Features of these heavy duty trailers are welded all-steel frames with specially strengthened towbars; Cary Laminair progressive suspension; and wheels interchangeable with Land-Rover and Austin Gipsy. Another trailer to make its first appearance is the Scottorn dual-purpose trailer which is available in both the standard and Fezzan ranges. Basically

Among the products being exhibited by **B. Dixon-Bate, Ltd.**, Chester, of particular interest is an articulated Land-Rover conversion suitable for plant hire firms, general contractors, and those requiring a 35cwt. capacity low loader for use off or on the

Among the several vehicles being shown by **Albion Motors, Ltd.**, of special interest is the Clydesdale 9-ton chassis fitted with a concrete agitator. This latest version of the Clydesdale is exhibited with a new diesel engine from the Leyland Power-Plus



Articulated Land-Rover conversion

road. There are also two jointers' trailers, one specially designed for water boards, and the other suitable for gas and electricity undertakings. A further exhibit is the C30, with Laminair suspension and steel body, complete with collapsible 200-gallon tank.

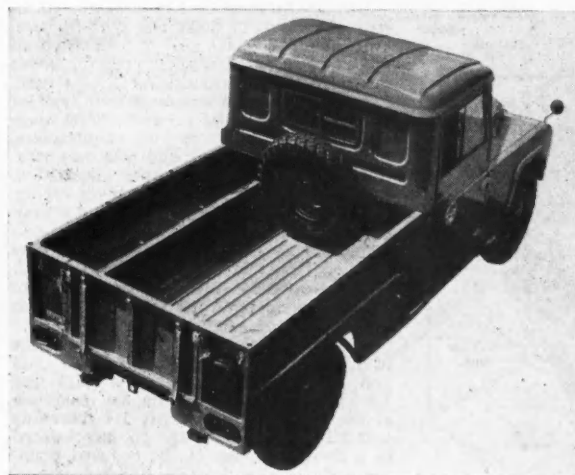
series, designated 400-S. A six-cylinder direct-injection four-stroke unit with a capacity of 399 cu. in., it develops a net installed 125-b.h.p. at 2,400 r.p.m., and produces a maximum torque of 300lb./ft. at 1,600 r.p.m. The chassis exhibited has a wheelbase of 10ft., and is equipped with a 4 cu. yd. Ransomes and Rapier concrete agitator, which is rotated by a Deri-sine hydraulic pump driven from the front end of the crankshaft.

In the Demonstration **Austin Motor Co., Ltd.**, are showing for the first time a new long-wheelbase Austin Gipsy pick-up. This latest 4 x 4, which supplements the 90in. wheelbase petrol and diesel models, has a payload capacity of 15cwt. and a wheelbase of 111in. It is available with either 2.2-litre petrol or diesel engines, and is mechanically similar to the present Mark II vehicles, apart from the fitting of large semi-elliptic leaf springs at the rear. The welded tubular chassis with five cross-members, of extremely rugged construction, has been extended and strengthened on the model and larger 7.00-16 semi-cross country tyres are fitted as standard. The vehicle has a fibreglass cab with sliding glass sidescreens.

Making its first appearance at any major vehicle exhibition is the Morris Mini-Van, recently introduced by **Morris Motors, Ltd.**, and incorporating independent rubber suspension all round, front wheel drive, petrol consumption of 50 m.p.g., and 58 cu. ft. of delivery space.

Tyresoles, Ltd., are showing their newest developments for the repair and reconditioning of vehicle tyres, and with the Wyresoles steel claw tread are featuring the importance of cool running for heavily loaded vehicles at higher than usual speeds.

A new system of interlocking extruded aluminium sections which can be snapped together to form a rigid and robust vehicle body of any required size is featured on the stand of **British Aluminium Co., Ltd.** Another exhibit, the first to be built in this country, is a complete aluminium transit concrete mixer. It weighs one-third less than a steel model.



Long wheelbase Austin Gipsy pick-up

this trailer has a capacity of 120 Imperial gallons and a cargo capacity of 1 ton.

A number of new models and improved versions can be seen on the stand of **Vauxhall Motors, Ltd.** Pride of place is given to the new forward-control TK Bedford range, which features cab-ahead-of-engine design, extra-low loading heights, easy engine access, flat-floor cab, and "triple safety" braking. The four forward-control exhibits are a 4-ton chassis/cab with 214 cu. in. petrol engine; 6-ton dropside truck with Bedford-built 300 cu. in. diesel engine; 7½-ton dropside truck with 350 cu. in. diesel engine; and 6 cu. yd. all-steel tipper (Telehoist) with 300 cu. in. diesel engine. Another new vehicle making its first public appearance will be the Bedford light pick-up, a multi-purpose vehicle with passenger-car characteristics, and the new Vauxhall 2.6-litre six-cylinder engine under the bonnet of the current Bedford normal-control cab. Also on the stand is a long-wheelbase Bedford 15cwt. van, which for 1961 has 13in. wheels and a 200lb. increase in payload capacity, and a normal-control 5 cu. yd. wood-bodied tipper (Weston) with 300 cu. in. diesel engine.



Bedford light pick-up

International Construction

NEW COST-SAVING METHODS AT HAAS HYDRO-ELECTRIC PROJECT

From a Correspondent

FORMING part of a three-plant project on the Kings River in California's Sierra Nevada Mountains, which is expected to cost the Pacific Gas and Electric Company about \$80m. on completion, the new Haas hydro-electric project incorporates some interesting and cost-saving construction features. The entire scheme takes advantage of a total fall in the water level of the Kings River of over 7,000ft., and it will bring the company's total capacity on this river to 296,000-kW.

To be used for carry-over storage, the upper Courtright Reservoir has a capacity of 121,300 acre-ft., with a maximum water surface at El. 8184 and is located on Helms Creek, a tributary of the North Fork Kings River. It serves the Wishon Reservoir, located at El. 6550 on the main stream of the North Fork Kings River which itself has an effective capacity of 128,400 acre-ft.

Water from Wishon Reservoir feeds a new Haas underground power station through a 6½-mile tunnel and a 4,560ft. penstock. Below the new Haas plant is an existing diversion dam that feeds the Balch power plant placed in service in 1927. This diversion structure is being increased from 103ft. to 148ft. in height and the water will be carried through an existing 3½-mile long tunnel to an enlarged power house.

Below the Balch plant an existing 130ft. concrete arch diversion dam is being raised to 169ft. and it will divert the water through a further 3½-mile tunnel to the Kings River power plant, whose Pine Flat Reservoir has a maximum water surface at El. 951.5 and whose normal tail water is at El. 910. The Courtright and Wishon rockfill dams and the Haas and Balch power plants were all completed in 1958 while the Kings River plant is under construction and is scheduled for completion in June, 1962.

Noteworthy in connection with this project is the way in which previous experience has been drawn upon by the Pacific Gas and Electric Company to provide simpler and lower-cost concrete-lined rockfill dams for the Haas plant without impairing the high degree of safety. Appreciable economy has also been effected in the use of unlined tunnels while the underground intake valve, gallery, simple-shaft, differential surge chamber and storage rock trap, combine with the tunnel, to give an economic water conduit.

Changes effected at the Courtright and

Wishon Dams, which were designed concurrently and are similar, over previous structures, include a thinner layer of placed rock, a steeper upstream face, less rigid placed rock specification, the handling of face rock by pin-connected slings the elimination of keyways in the placed rock, the permitting of placed rock points to project to the plane of the reinforcing steel for the concrete, and simplified joints.

Both the dams consist of an inner core of dumped rock, sluiced into place so as

machines, were used to fill 17 cu. yd. end-dump trucks which did the ¼-mile downhill trip to the dam site.

In respect of the dumped rock placed in the dams, the specifications required that at least 50 per cent. by weight of the rock in the entire dams should range from ½ to 10 tons and over and that the equipment be able to handle rock pieces to at least 15 tons. The main lifts of dumped rock were to be at least 60ft. in height but, in fact, were higher. At Wishon sluicing nozzles of 2½in. or 3in. were used and the sluicing water used was not less than three times the volume of rock placed, the pumping system design being based on 100 p.s.i. minimum pressure at the nozzles, though a minimum of 70 p.s.i. was permitted in practice. Peak production of dumped rock was at a rate of 16,000 to 18,000 yd. per day. At Courtright, a 2:1 water to rock ratio was required in view of the very good quality rock and the restricted water supply.

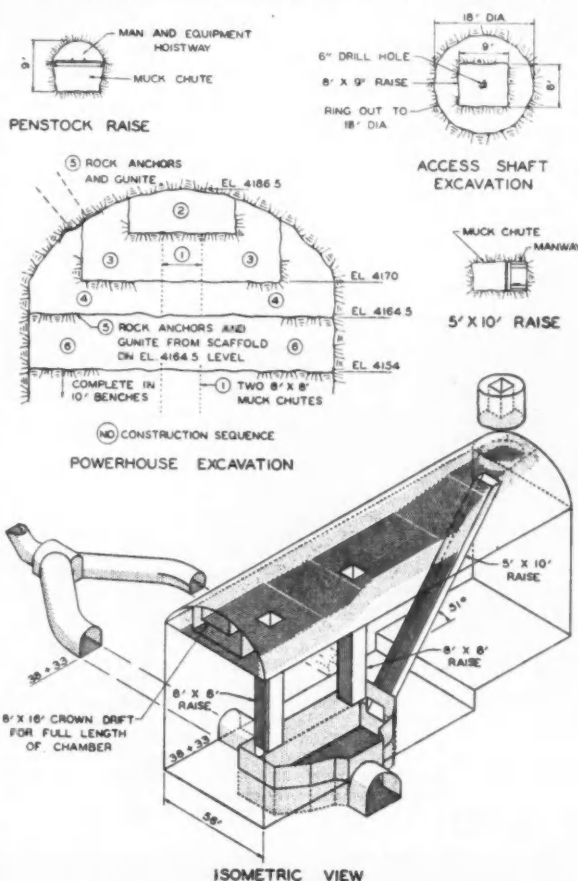
Out of the total of 3,700,000 cu. yd. of rock that went to make the Wishon Dam, only about 200,000 cu. yd. consisted of placed rock but this accounted for about one-third of the total cost of all the rock. Even so, considerable savings were realised over previous similar projects. Five large cranes were used by the contractors, Morrison-Walsh-Perini, and rock was carefully directed to each crane as required to achieve the placing of an average of 135 cu. yd. of rock per crane per shift and a peak of 200 cu. yd. Crane placing was also facilitated by the use of pins which were inserted into holes drilled by a jack hammer on each side of a large piece of rock. By connecting the slings to the pins better handling resulted.

Compared with a uniform upstream slope of 1.3:1 at P.G. and E.'s Bear River Dam and a slope ranging between 1.1:1 and 1.4:1 at its Salt Springs Dam, the maximum at the Kings River dams is 1:1 flattening to 1.3:1 at the toe. This, too, has resulted in a saving because of the reduced quantities of placed rock and concrete surfacing required, the thickness of placed rock at these dams being under 7ft. at the crest and rather more than 11ft. at the base.

Upstream Face

Concrete for the upstream face was placed by buckets handled by a crane on the face lift, a slip form pulling itself up the face by electrically operated winches placed on the slip form. The concrete was placed in 60ft. square panels, except at the bottom and near the edges where smaller panels were poured. The thickness of the concrete layer increased from a minimum of 1ft. with its distance from the dam crest. Run-of-pit material from the reservoir sites was used for aggregate production, crushing being necessary because of the large amount of cobbles and the small amount of ¾in. to 1½in. material. It was furnished in four sizes because of its friable nature and rescreened at the batch plant to ensure a grading that would result in a dense frost-resistant concrete. The 3,000 p.s.i. air entrained concrete contained Pozzolith, pozzolan and Type II cement.

Both vertical and horizontal expansion joints were incorporated to take care of possible settling and, under these, 4ft. wide vertical and 3ft. wide horizontal concrete strips were poured on the face slab and coated with asphalt to facilitate movement of the concrete slab without damage to its edges. Incidentally, these ribs also provided a secondary water stop and helped construction by providing a good surface



to give maximum settlement and contact, a layer of crane-placed rock to smooth off the surface and a concrete facing to make the dam as watertight as possible.

For each of the dams, which are surrounded by exposed massive granite, rock has been taken from two quarries one of which had to be the spillway excavation in each case. For this, no payment was made apart from payment for the rock as rockfill. In each case, most of the rock has come from the other or primary quarry. At Wishon, for example, about 2,500,000 cu. yd. of solid rock, or 3,700,000 cu. yd. of rockfill were required. Of this, the spillway quarry yielded about 480,000 cu. yd. of solid rock or about 750,000 cu. yd. as placed.

At the main Wishon quarry, heavy rock drills, with their own air compressors, were used to drill 6½in. diameter holes on a 15ft. by 18ft. pattern while at Courtright self-propelled 2½in. drills were used to bore holes on a 7ft. by 8ft. pattern. Large electric shovels with 6½ cu. yd. buckets, together with some smaller diesel

on which the forms could be supported. Also included in the joint was a copper seal at about mid-thickness and, underneath the copper water stop, P. G. and E., for the first time, placed a layer of Styrofoam plastic. This was strong enough to hold the concrete as poured but could be squeezed to a very thin layer under load. Mastic was placed above the copper water stop.

Power Station

The Haas power station is the first large-size underground plant in the U.S. Rock excavations for the Haas power tunnel included the Wishon Dam diversion tunnel, the outlet from the dam, the Haas intake valve chamber and access shaft, a 64-mile power tunnel, a rock trap and a surge shaft with galleries. The excavations for the plant itself included the tailrace tunnel, the penstock shaft, the power house access shaft and the power house chamber.

Some 1,100 ft. in length, the diversion tunnel required no support and apart from the concrete plugs and valve discharge chamber remained unlined as the permanent outlet works for the dam, being considered capable of withstanding a turbulent discharge of 3,500 c.f.s.

The Haas power tunnel begins at the valve chamber where the water under 240ft. head is sealed off by grouted 20ft.

Guniting was also used occasionally to prevent rock-falls.

After the rails and sleepers had been removed from the floor of the unlined tunnel, some 12in. to 15in. of tunnel muck remained and to prevent this reaching the turbine, a trap was located at the downstream end of the tunnel by enlarging its 13ft. diameter to 21ft. for a length of 440ft. This was intended to store that portion of the muck that, it was estimated, would move down the tunnel, and was a cheaper method of dealing with it than muck removal or invert concreting would have been.

Drill hole exploitation had shown that the upper half of the 300ft. deep 12ft. diameter surge shaft would have to pass through decomposed and weathered soft-grained granite which was unsuitable for the "raise" method of construction. Because of this, downward excavation and concreting was carried out from a head frame at the surface to a depth of 150ft. in 10ft. stages.

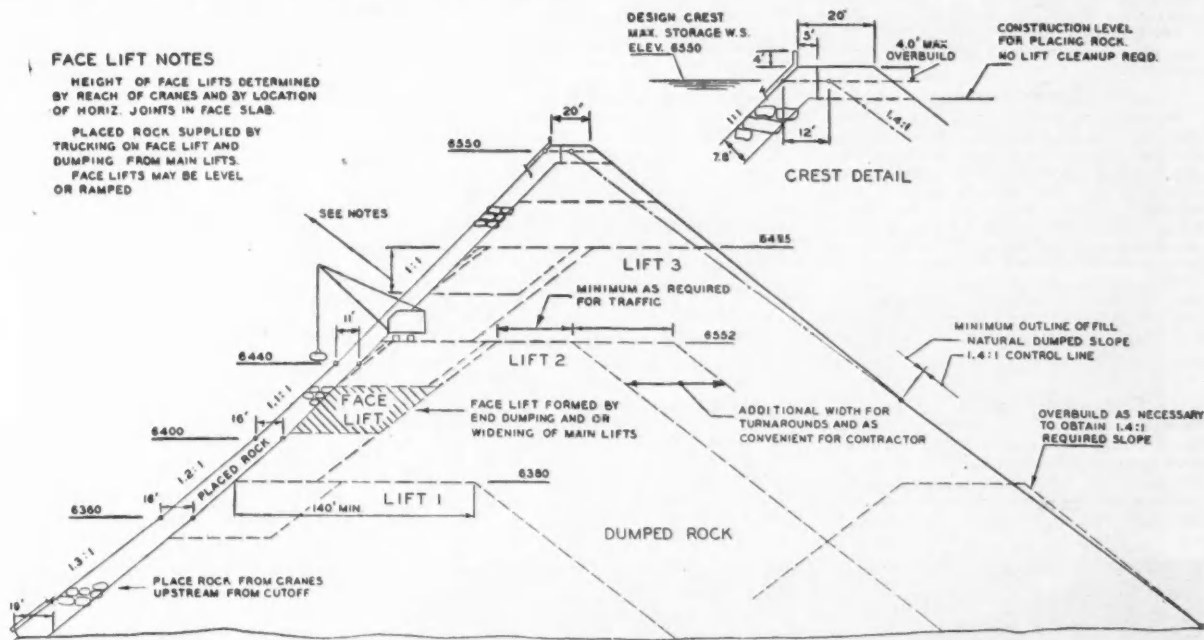
When, at 150ft. depth, good rock was encountered, a 6in. hole was drilled down to the tunnel and the lower half of the surge shaft was excavated from the bottom up by the use of a cage suspended on a cable running from the head frame through the 6in. drill hole. This

access during construction and provides for future access for heavy loads as well as for emergency personnel access and for ventilation.

Excavation Contract

Awarded to Morrison-Kaiser-Macco-Perini, the power plant excavation contract included tailrace tunnel, power house chamber, access shaft and penstock shaft. Practically no support was required for the excavation and no water was encountered. The tailrace tunnel was first completed to gain access to the power house area and other excavations. From a small excavated chamber work was then begun simultaneously on the penstock tunnel and shaft, two 8ft. by 8ft. raises to the crown of the chamber and a 5ft. by 10ft. raise of 51 degrees angle to the horizontal to the base of the vertical access shaft.

For the driving of the tailrace tunnel which took 58 working days at an average rate of 34ft. per working day, 13ft. sections were drilled from a truck-mounted jumbo. After blasting, mucking was done by Eimco mucker and Dumpsters. Four 40ft. long by 20ft. wide passing areas were incorporated into the tunnel. The remaining 15ft. width was more than was hydraulically necessary, having been decided upon to accommodate construction.



Construction method—Main section. Wishon Dam

long concrete plugs, through which a 10ft. diameter pipe carries the flow. Both the valve chamber and the 6ft. by 6ft. access and air vent shaft are unlined.

The excavation contract for the 13ft. unlined, horseshoe-shaped power tunnel was awarded to Morrison-Kaiser-Macco-Perini and the tunnel was driven from one adit on two headings, 19,560ft. upstream and 12,830ft. downstream. The first 2,800ft. in each direction from the adit was driven by "alternate headings" at an average rate of 90ft. per day, for one crew on each of three shifts, until daily progress dropped to the required minimum schedule of 1,000ft. per month, or 40ft. per day, in the long upstream heading. The overall average rate of driving was 57ft. per day and peak performance 70ft. to 75ft. per day. The average overbreak was 21.9 per cent., or 0.71ft. all round the tunnel section.

Tunnel Unlined

About 97 per cent. of the tunnel is unlined, but there are 14 short stretches of 10ft. to 150ft. in length, totalling 1,020ft., in faulted, soft seam and fractured zones that required concrete or gunite lining.

lower portion was treated with mesh reinforced 3in. thick gunite because the granite here was water-bearing and seamy. The two 75ft. long by 12ft. horseshoe-shaped galleries were, however, left unlined. From the surge chamber to the portal the tunnel was designed for pressure and watertightness and was given a concrete backfilled steel liner.

The decision to put the Haas power house underground was largely influenced by economic factors, the design substituting 2,000ft. of unlined tailrace tunnel for the longer length of heavy steel 2in. to 3in. thick penstock that would have been required for an above-ground plant. In addition, the underground location gave 30ft. more head and the granite provided a good sound rock for excavation.

It is approximately 500ft. vertically below the surface and 2,000ft. from the river. The penstock is in a 760ft. shaft leading to the power house chamber, which is 173ft. by 56ft. in plan and 100ft. high. An 18ft. diameter access shaft leading to the surface contains generator leads, elevator, stairway, piping and control leads and serves as the exhaust ventilator duct. The 2,000ft. long, 17ft. 6in. high by 15ft. wide unlined tailrace tunnel served as

tion traffic. The invert is paved for use as a permanent access roadway.

Excavations for the power house started at the crown where a drift was cut out running the full length of the power house. Working from this crown drift at the end away from the access shaft excavation so as not to interfere with that operation, the power house arch was excavated down to 8ft. below the spring line. To secure the ceiling for personnel and equipment safety a rock-anchored and gunited arch was decided upon. The rock anchors used were lin. in diameter reinforcing bars, 10ft., 12ft. 6in. and 15ft. long and were placed at 34ft. spacing both ways.

Overhead Grouting

The Perfo method of the Sika Chemical Corporation was adopted for overhead grouting of the rock anchors. Two half-round perforated tubes of sheet metal were filled with stiff sand grout and then wired together. This was inserted in the hole and the reinforcing rod driven in by air hammer. The volume of grout was such that a slight amount was extruded through the perforations as the rod was driven to the end of the hole. A gunite mesh was

(Concluded on page 1472)

International Construction**DRAINAGE TUNNEL ADVANCES AT
35 FT. PER DAY****From a Correspondent**

NOW nearing completion is a new drainage tunnel system totalling more than a mile in length beneath the American city of Rochester, N.Y. Average speed of advance since the spring of 1959 has been 35ft. a day during single daylight shifts.

The main purpose of the tunnel is to drain Rochester's low-lying Inner Loop area, parts of which are below the level of existing drainage tunnels. It will carry both storm water and sewage and will also drain a slum-clearance project at Baden-Ormund.

Sited some 60ft. below the city's streets in Dolomite limestone, the drainage project calls for sequences of 7ft., 8ft. and 9ft. diameter tunnels. The fall is 4in. per 100ft., with a maximum run off rate of 45,000 cu. ft. a minute. The total excavation of the 1.06 mile unlined tunnel will involve the removal of 14,900 cu. yd. of rock. Three adits sunk from the surface have added 1,240 cu. yd. to the rock work, and 2,400 cu. yd. of earth have also had to be removed.

Double Heading

Working on a double heading, the contractors (Verona Construction Company) are completing five rounds per eight-hour day. They have had little trouble from ground water and none from gas. Most of the drilling is being done with Atlas Copco Lion drills, which have an optimum penetration rate of about 2ft. a minute in hard granite. On the Rochester job, it is estimated that the drills are driving into the Dolomite limestone at between 28in. and 30in. a minute. The 8ft. Sandvik Coromant drillsteels which are being used

are having a life of between 1,500ft. and 1,700ft. These steels are brought to the surface and sharpened at the end of each eight-hour shift.

The five-man tunnelling team are drilling out a 30-33 hole, eight foot round, in from 40 to 50 minutes. In the nine foot heading, each round brings down about 23 cu. yd. of well-fragmented rock for a 3.7 explosive factor. With short period delays, 75lb. to 80lb. of explosive are used per round. Each firing gives a net advance of about 7ft.

The five-man mucking crew wait about 10 minutes for smoke to clear before going to work with their loader. Using 2 cu. ft. capacity mine dump trucks they muck out a round in about one and a quarter hours, the trucks being pulled by a diesel locomotive in seven- or eight-car trains to the base of a working shaft. From there they are hoisted singly to the surface. Mucking each round requires about 24 trucks, running on a 24in. track laid in 15ft. sections.

Invert

Planned as a bedrock tunnel rather than a conventional pipe system, the Rochester project calls for a 9in. invert, requiring some 1,400 cu. yd. of concrete. Another 400 cu. yd. will go into manholes and shaft work. The tunnels are being driven about 1ft. larger in diameter than specified to permit concrete lining if this becomes necessary in the future. Roof bolts, 4ft. long and 3/4in. in diameter, are being placed throughout the system at 3ft. centres.

The tunnels will be ventilated through nine pipes, two of 24in. diameter, and seven of 12in. diameter. Their depths range from 32ft. to 57ft. The total cost of the contract is \$1,263,081, and completion date is due to be December 1, 1960.

(Concluded from page 1471)

formed to cover the rock with a 1in. minimum clearance and reinforcing bars were used to supplement the mesh in anchoring the gunite to the rock. Gunite of 4in. thickness, with 1 1/4in. minimum cover over the mesh and rock points was applied to

the shape of the rock.

This work was carried out from pipe scaffolding from the floor of the cut, the scaffolding being removed as work progressed toward the access shaft end. Some 2,000 anchors and 13,000 sq. ft. of gunite were placed in six weeks.

**TAYLOR WOODROW'S
CANADIAN VENTURE**

TORONTO Property Investment Co., Ltd., London, have acquired through their subsidiary, Hillstreet Developments, Ltd., Toronto, the control of Terminal Towers, Ltd., who own the important site fronting on to King-Catherine and Main Streets, Hamilton, Ontario.

Plans for the immediate development of the site as a combined commercial, office and hotel centre are being studied, and Real Estate Research, Ltd. (associated with Gruneau Research, Ltd.) have been appointed to carry out a market survey. The architects for the project are Crang and Boake, Toronto.

Principal shareholders in Toronto Property Investment Co., Ltd., are the Taylor Woodrow Group and Mr. Felix Fenston, of London.

**PUMPS FOR CANADIAN
POWER STATION**

Montreal Engineering Co., Ltd., acting on behalf of their client, Calgary Power, Ltd., have awarded to W. H. Allen Sons and Co., Ltd., Bedford, the contract for two 48in. suspended "Allen-Stork" mixed-flow condenser circulating-water pumps and motors.

The sets are for the 1962 extension to the Wabamun Steam Plant, Alberta, where there are already four 33in. suspended "Allen-Stork" mixed-flow circulating-water pumps in service.

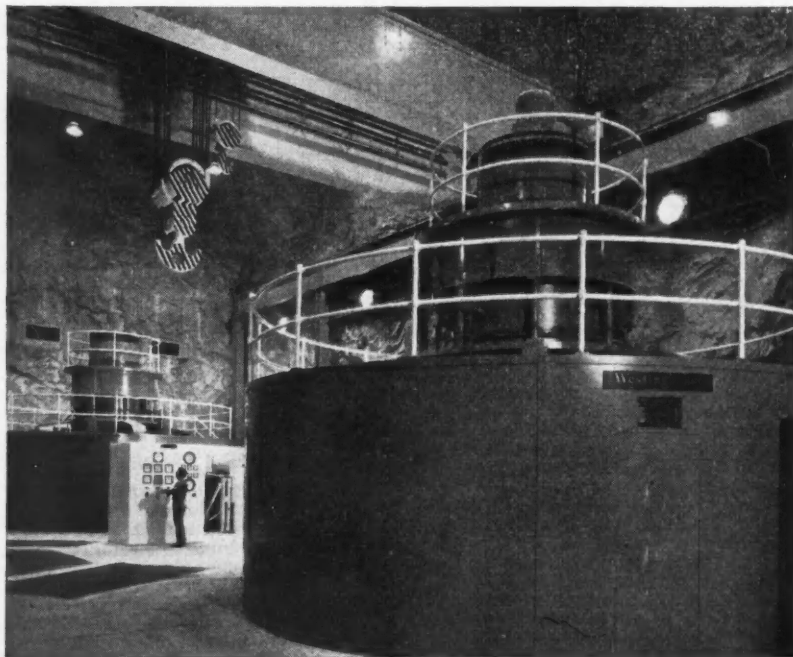
HOUSING IN MAURITIUS

Part of the rehabilitation and reconstruction programme following the cyclones earlier this year in Mauritius provides for the construction of 20,000 houses in timber and 5,000 in concrete. The United Kingdom Government has agreed to make grants of £3,452,000 and loans of £2,878,000 to the Mauritius Government to finance the programme.

On completion of the arch, the excavation proceeded rapidly downwards at an average rate of 2,000 cu. yd. per week, the main excavation being carried out in irregular benches about 10ft. or more in height. Drilling was carried out with self-propelled wagon drills and the muck was brought to the chutes by a slusher, a self-propelled mucker being used to clean up the pockets left by the slusher. From the bottom of the chutes, the muck was taken through the tailrace tunnel by diesel trucks fitted with exhaust scrubbers, which were loaded by a large mucker also fitted with a scrubber. The excavation between the two 8ft. square chutes or raises was completed first so as not to interfere with the vertical access shaft excavation.

The latter began with a 6in. diameter hole through which a cable was threaded to the steel cage used to drive an 8ft. by 9ft. pilot raise from the bottom upwards. When, during this operation, a round was to be shot, the cage was pulled under the chamber arch and the cable was pulled through the 6in. hole. The full 18in. diameter shaft was then excavated from the top down. The 389ft. of 8ft. by 9ft. pilot raise was driven in 25 working days, at 16ft. per day. Ringing out the full 18ft. diameter shaft took 23 days at an average of 17ft. a day.

After 635ft. of the 760ft. penstock shaft had been raised, fractured and then soft-grained granite was encountered. The remaining 125ft. were, therefore, driven from the surface bench downward and required timber support for safety. Muck was moved by rail through the 12ft. branch excavation and dumped into the power house chamber. Although the branch pipes are only 4ft. 7 1/2in. O.D., the 12ft. diameter tunnel was necessary to instal the two 82in. diameter bend pieces and the wye. The penstock raise was driven in 113 days at an average rate of 7ft. per day.



Interior of the Haas power house



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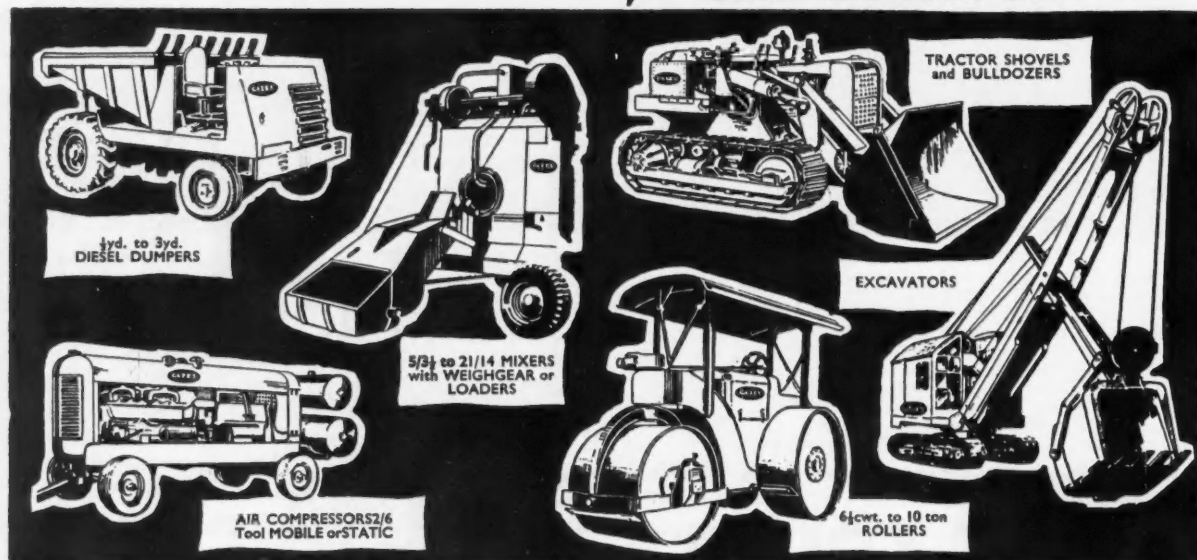
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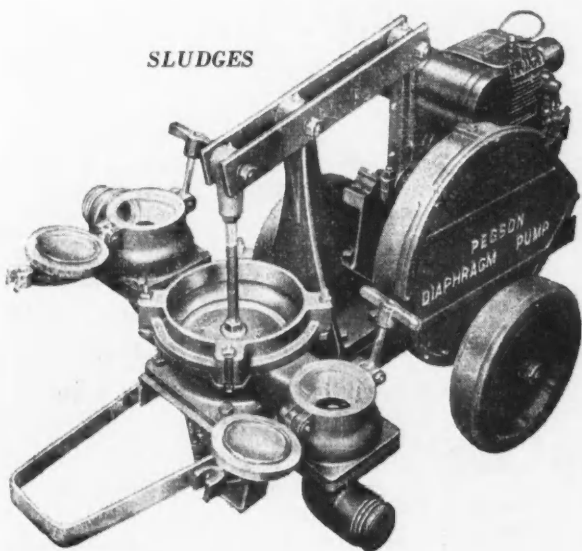
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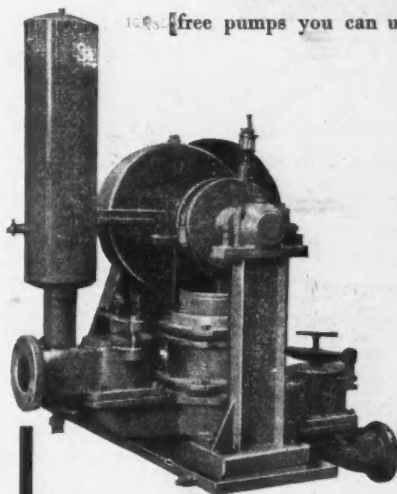
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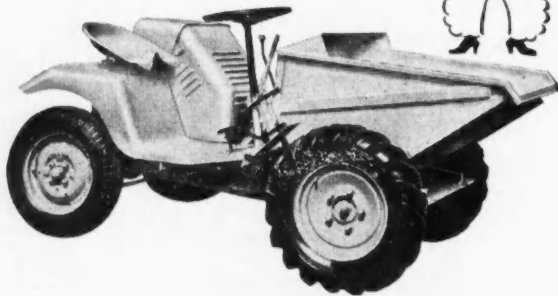
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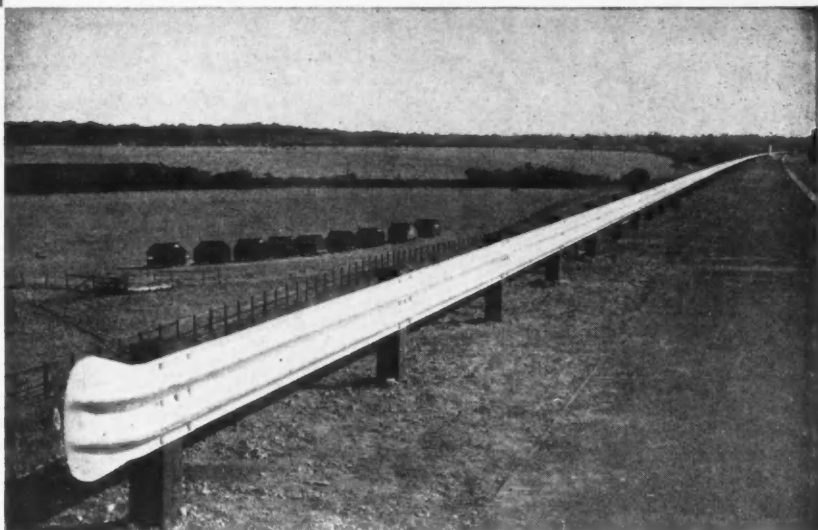
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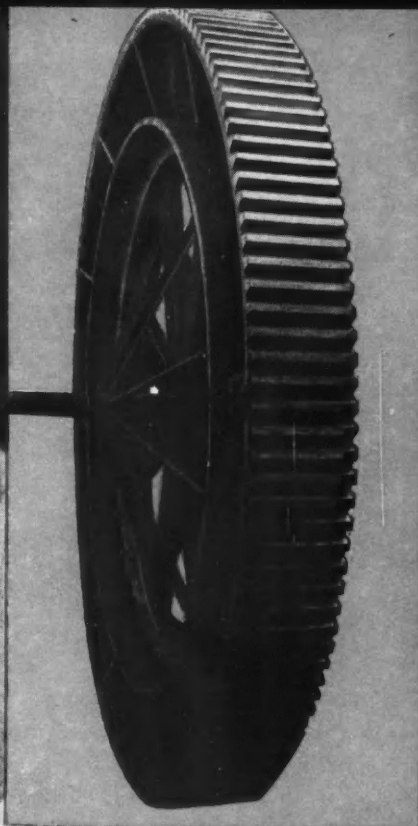


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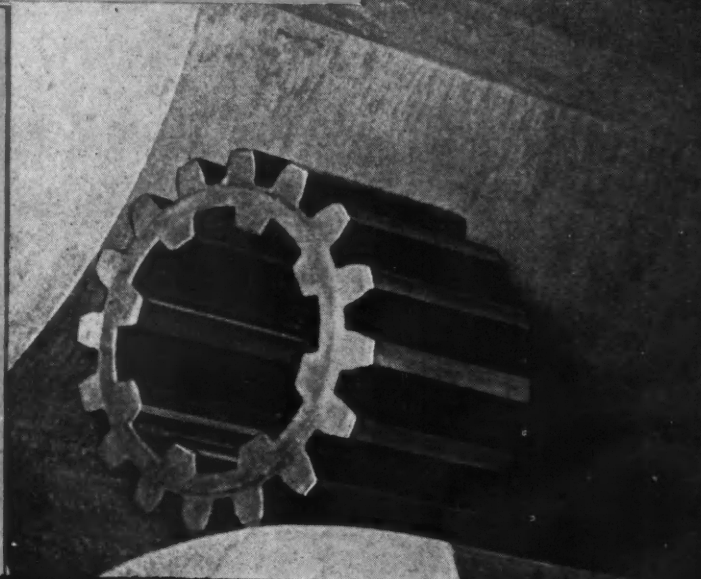
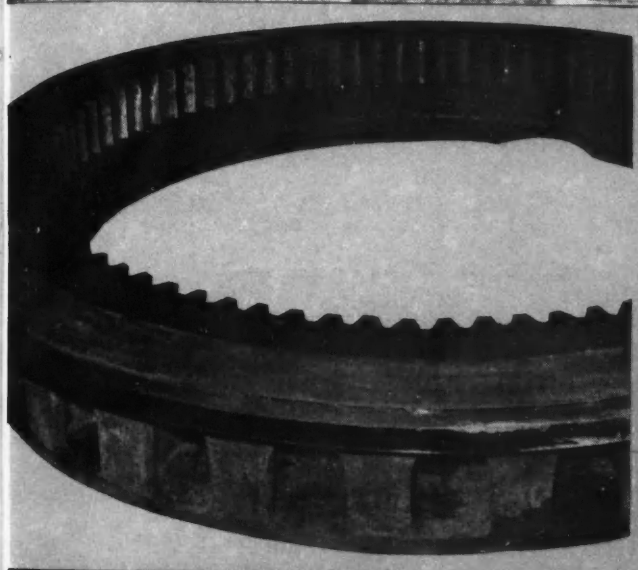
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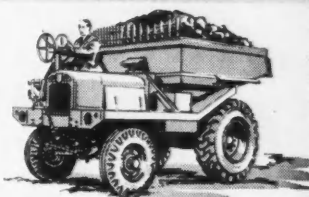
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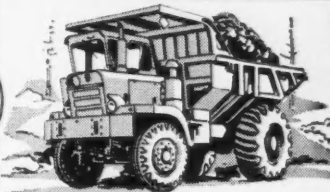
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9



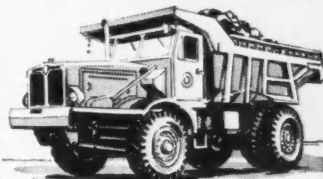
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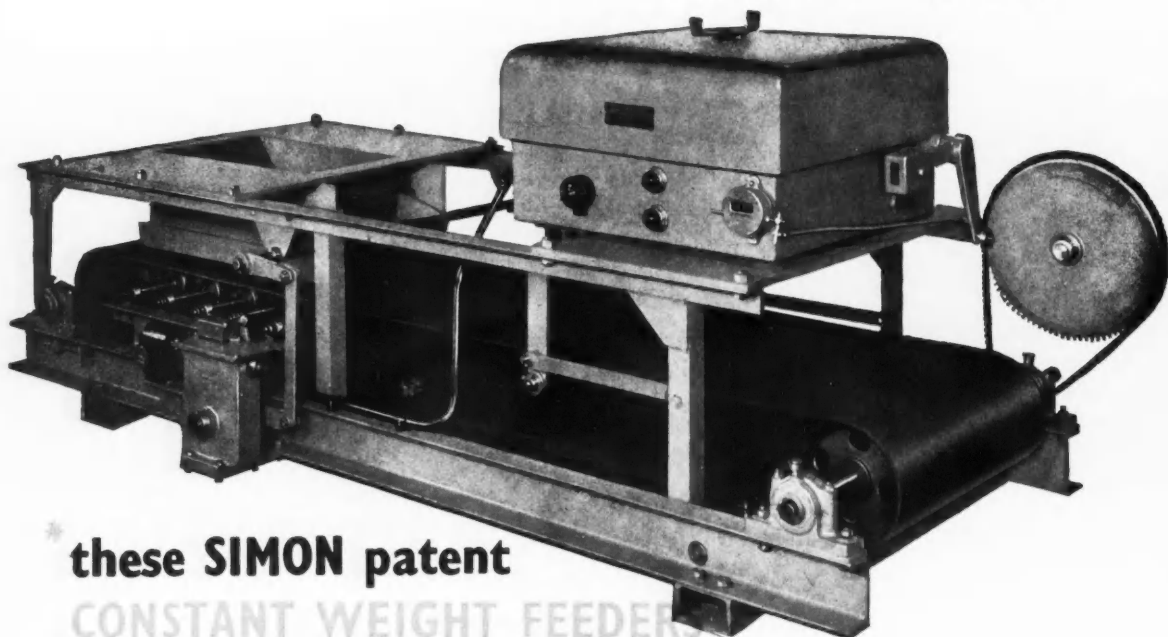
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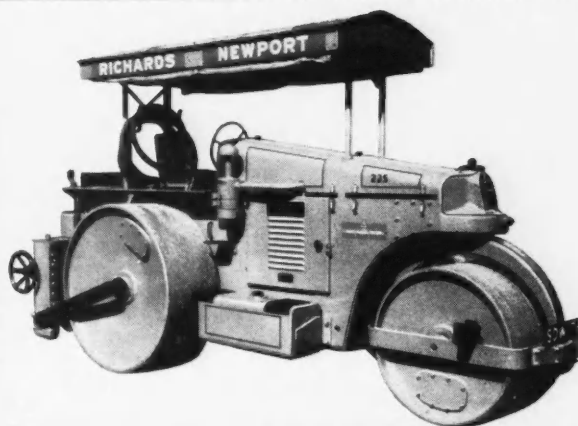
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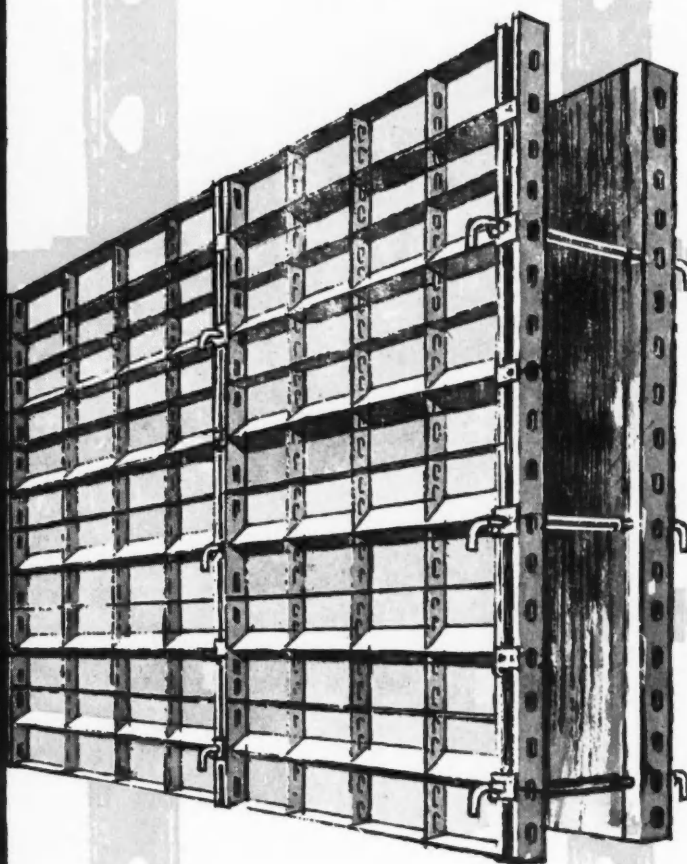
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(Continued from page 1398)

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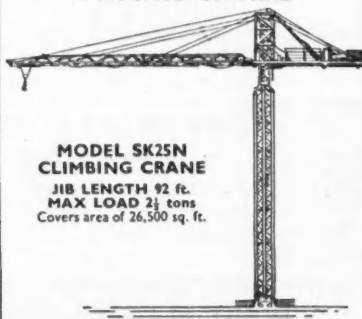
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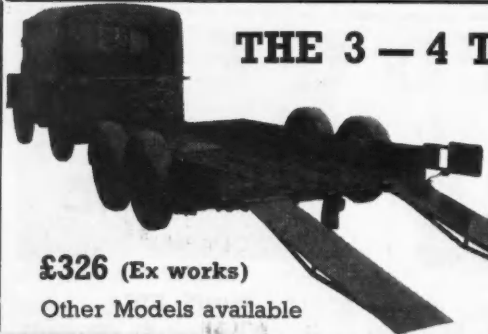
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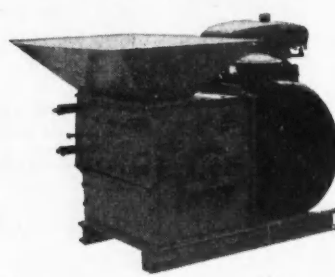
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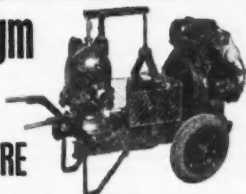
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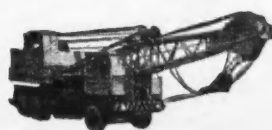
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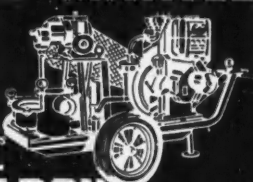
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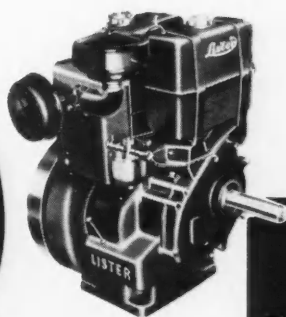
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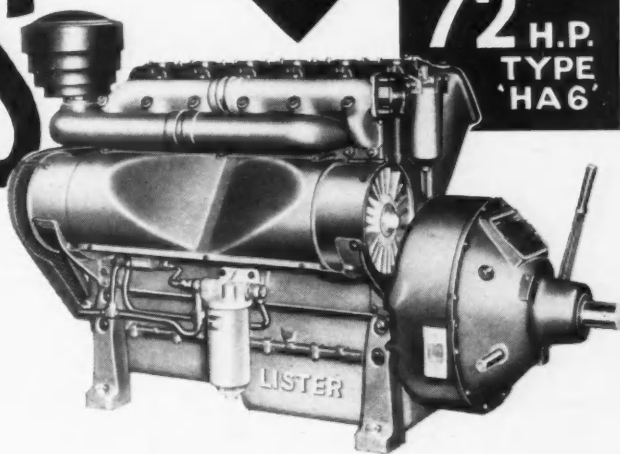


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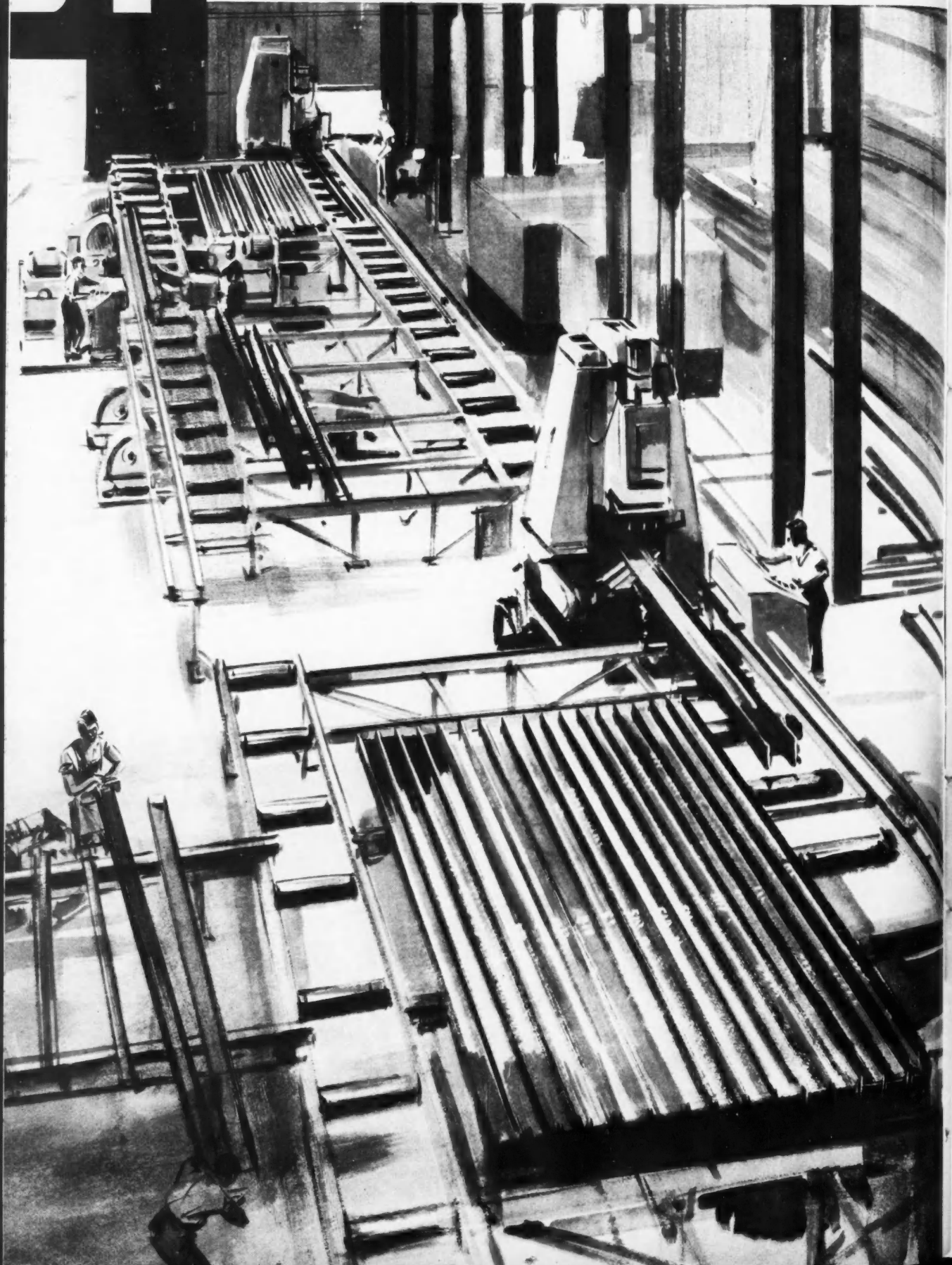
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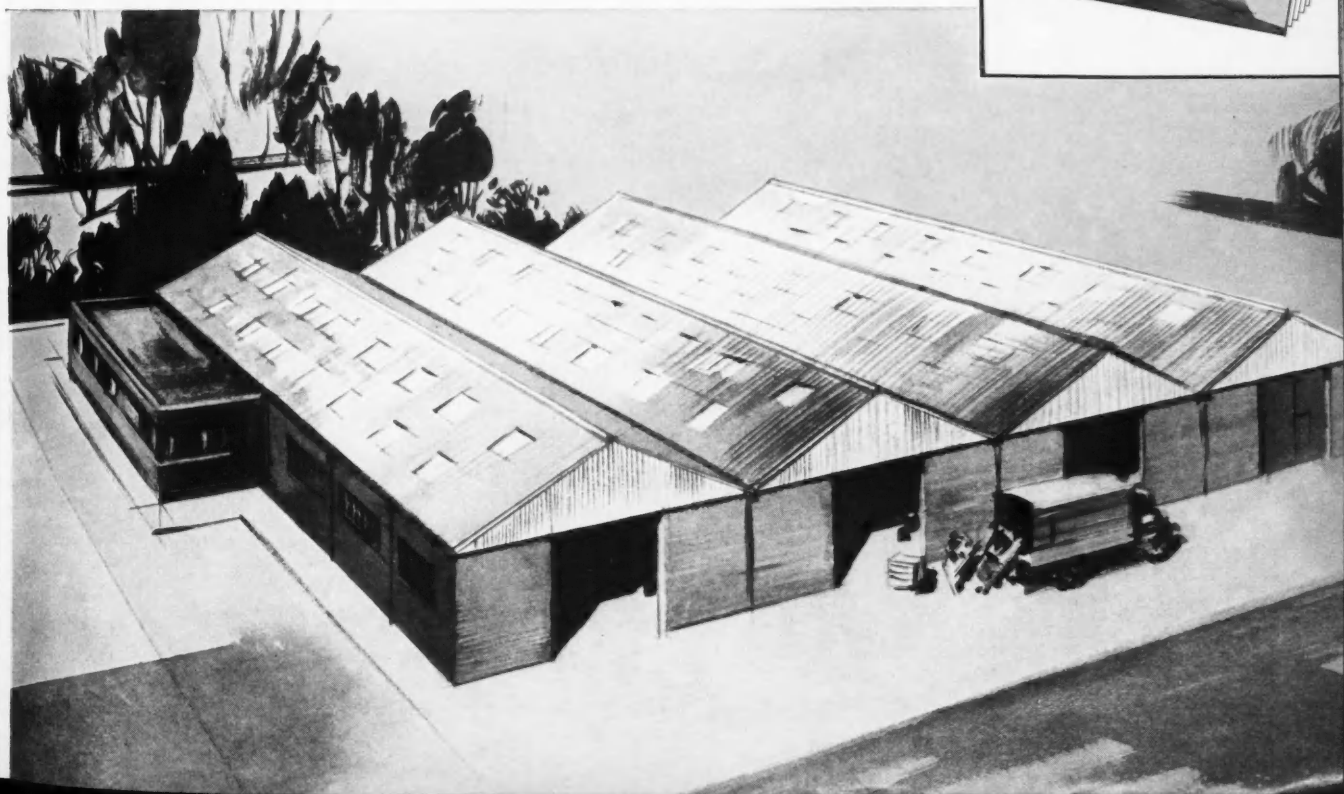
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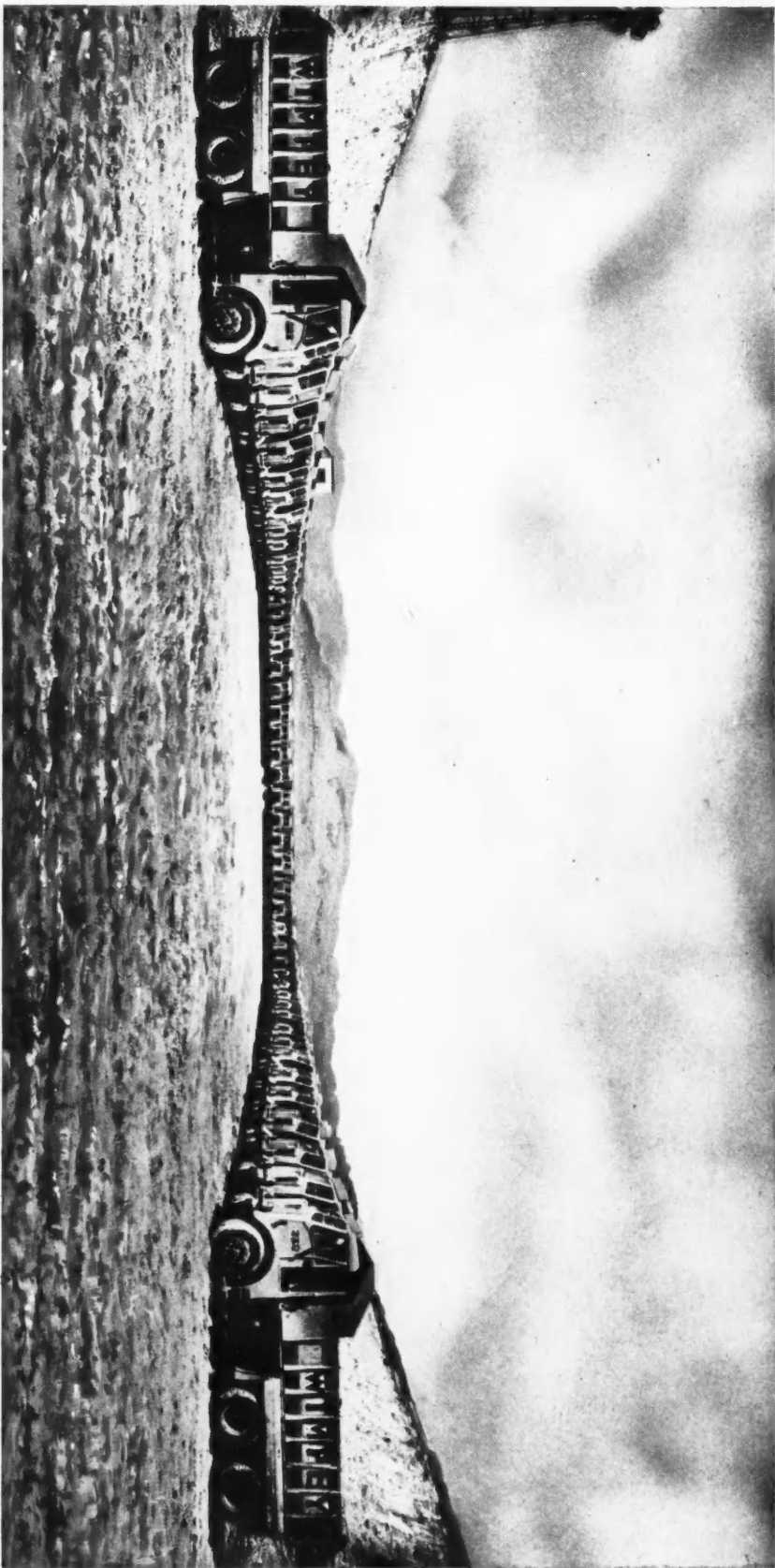
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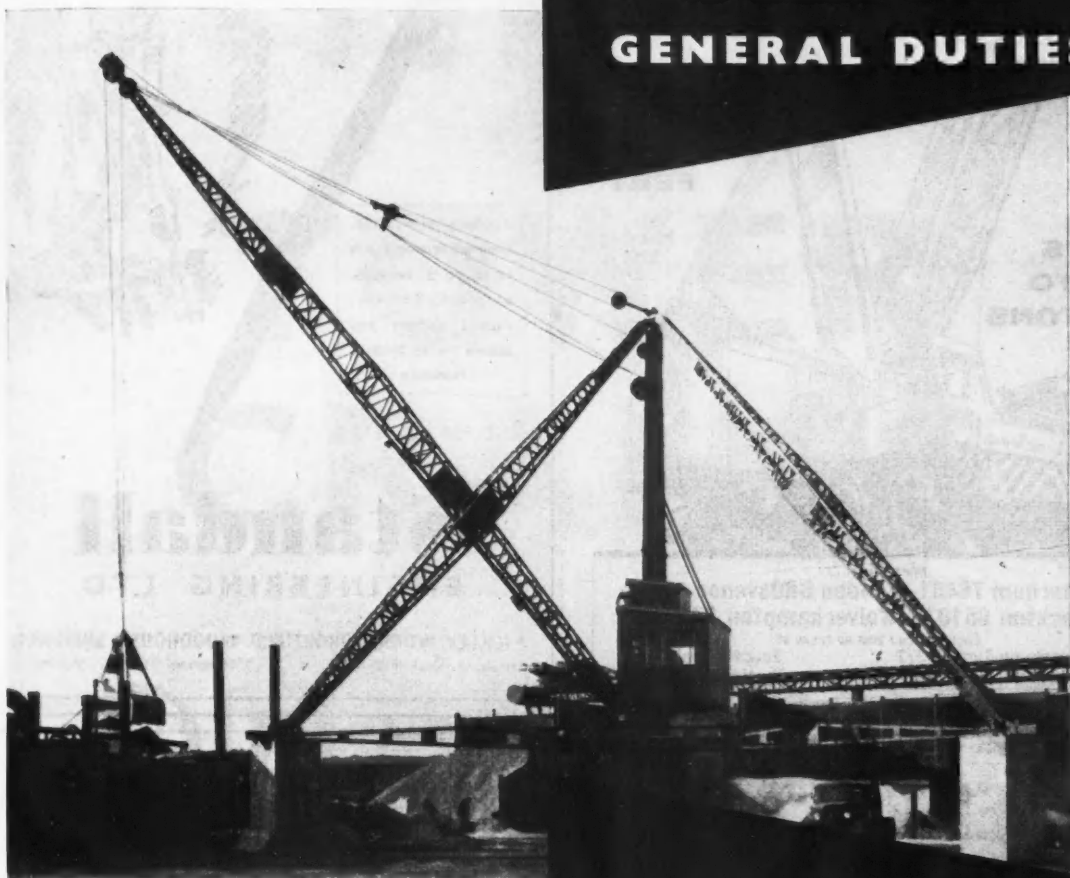
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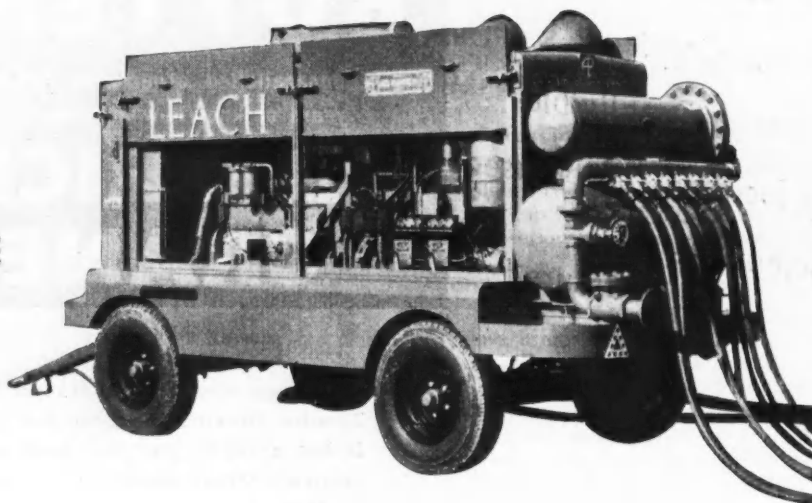
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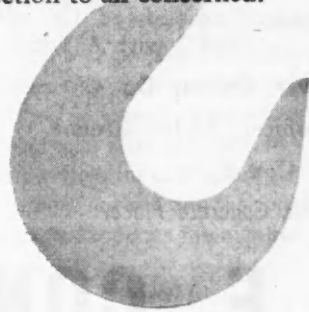
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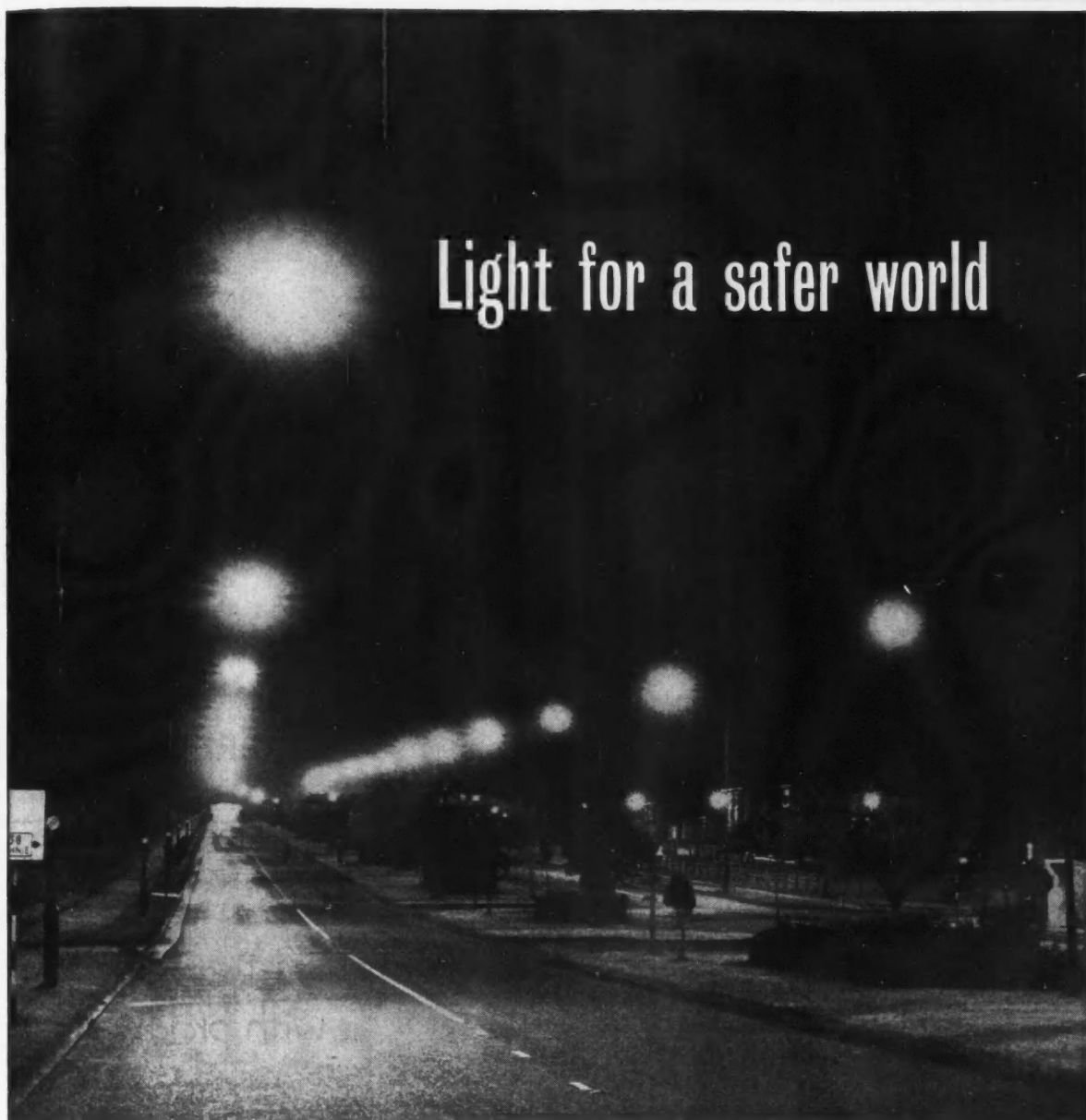
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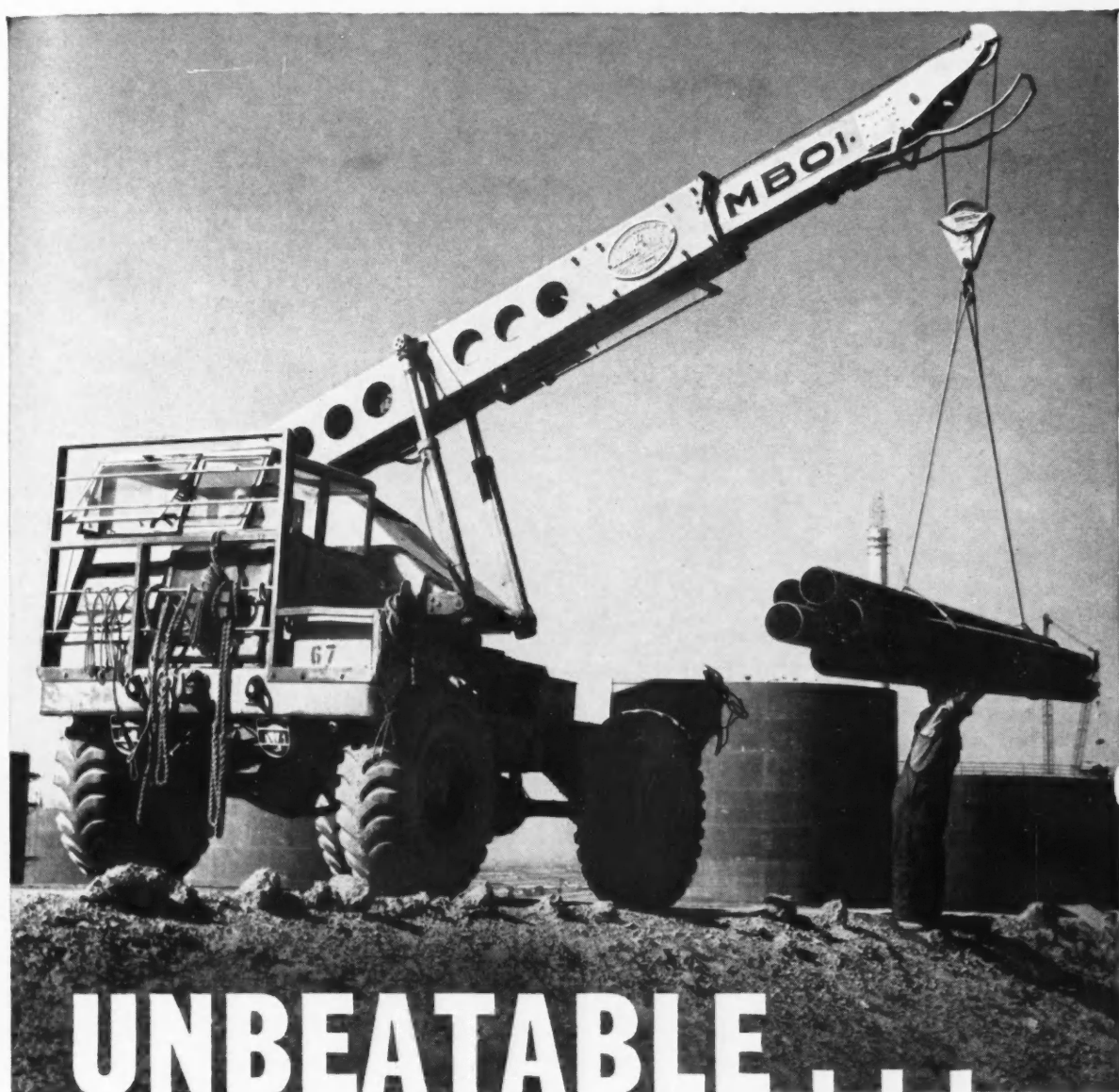
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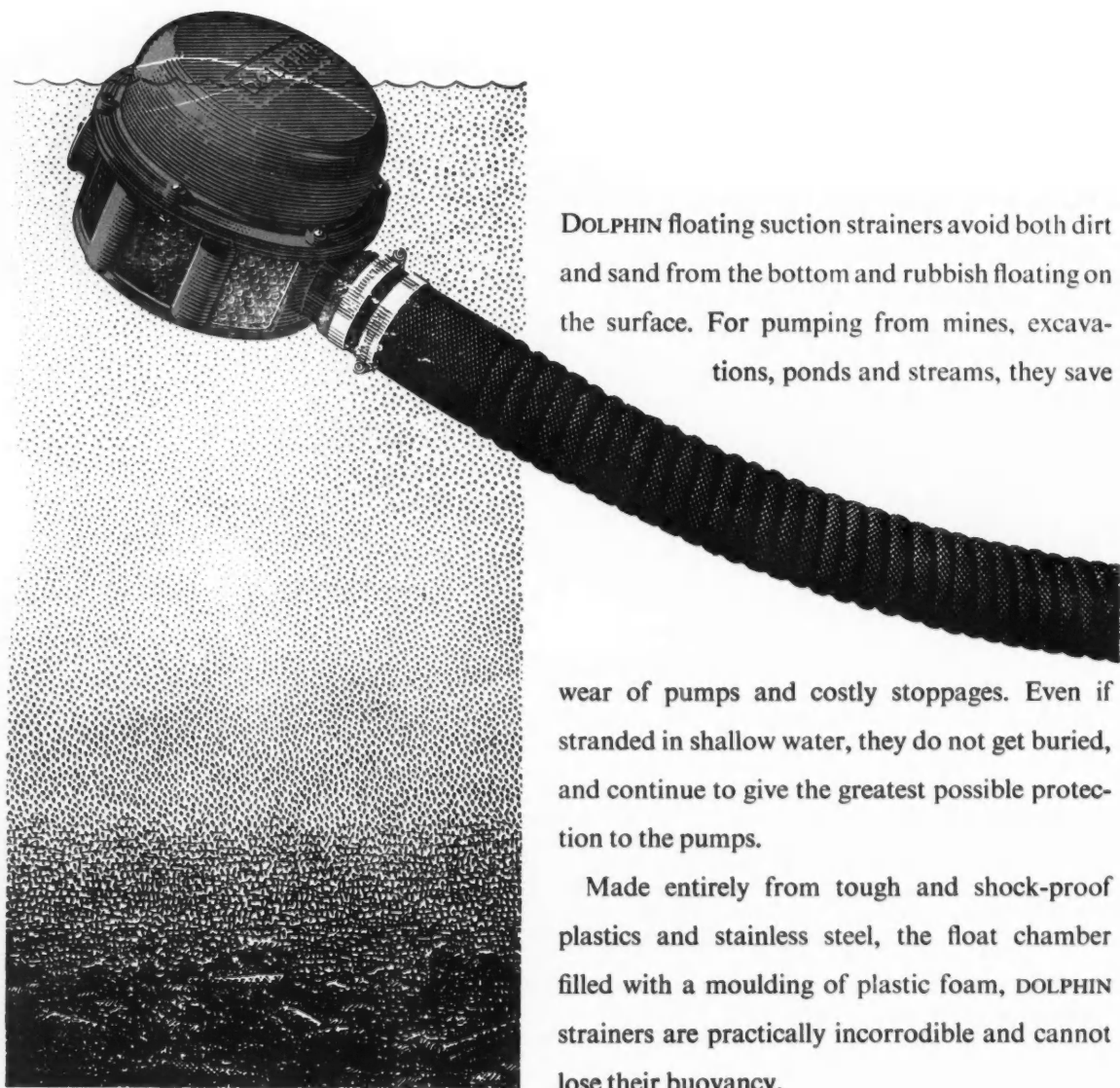
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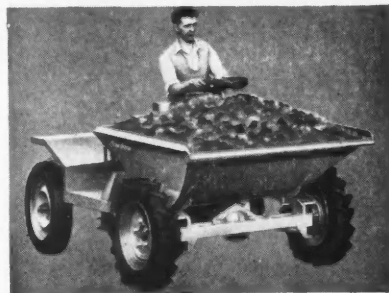
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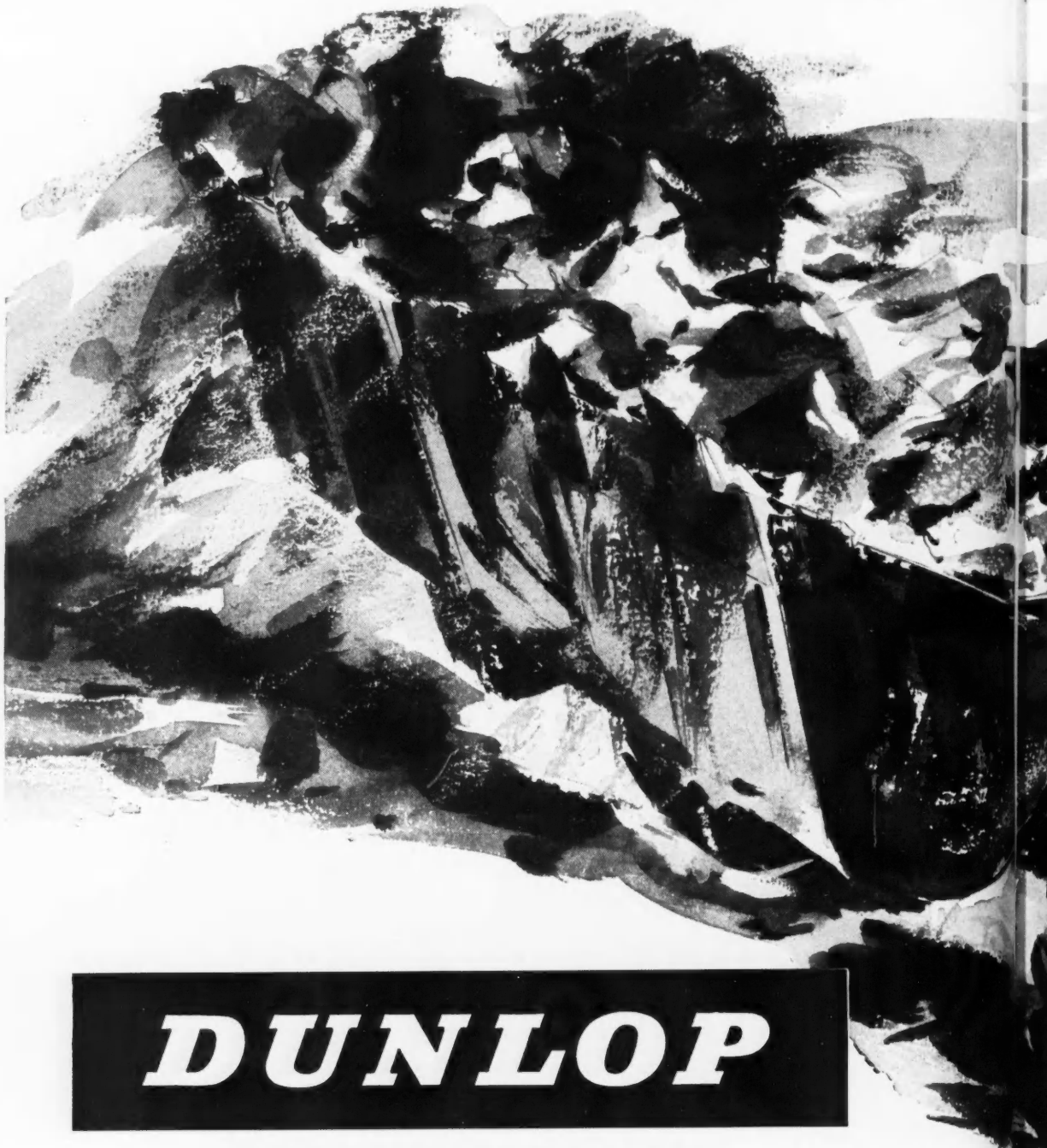
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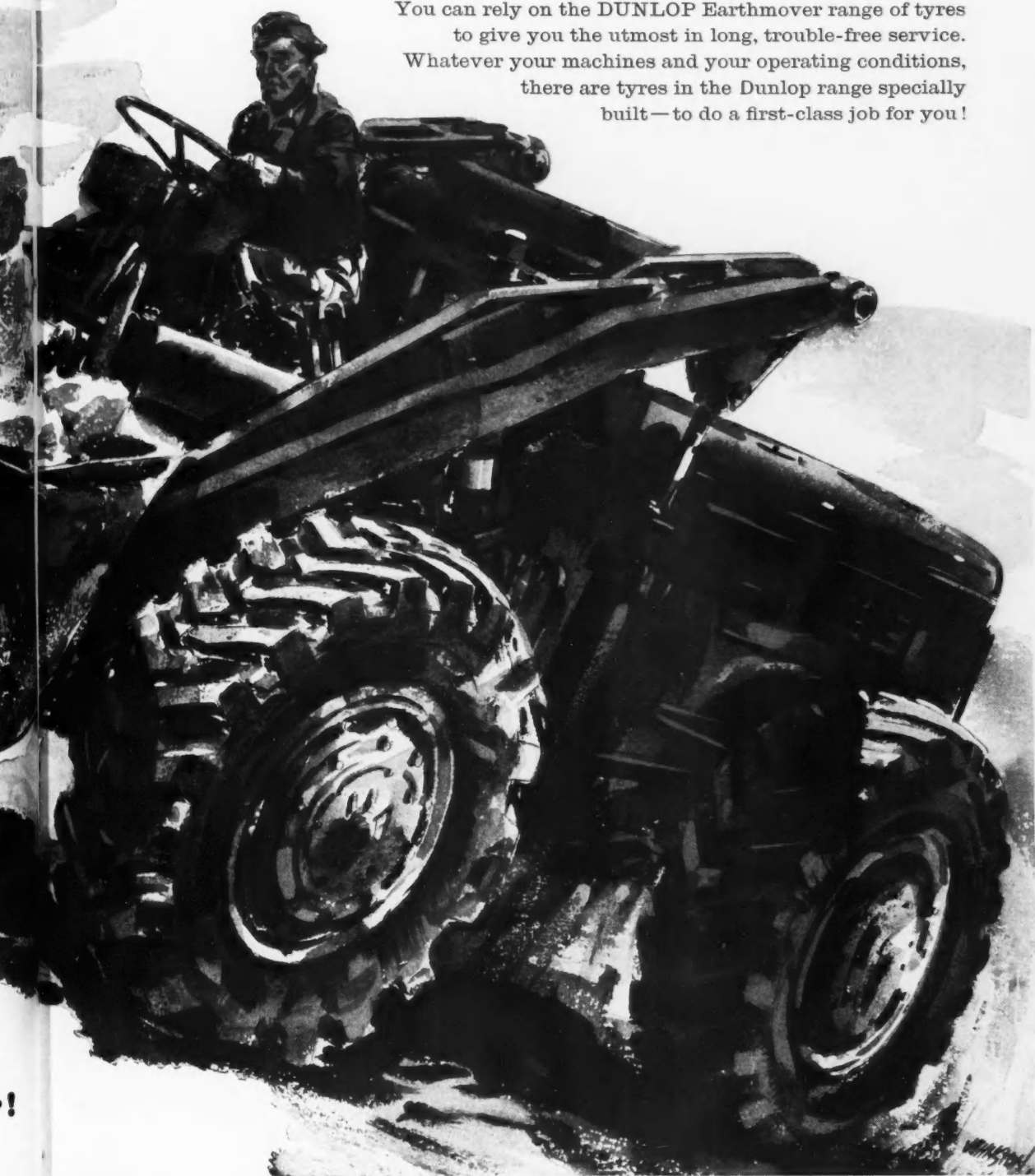
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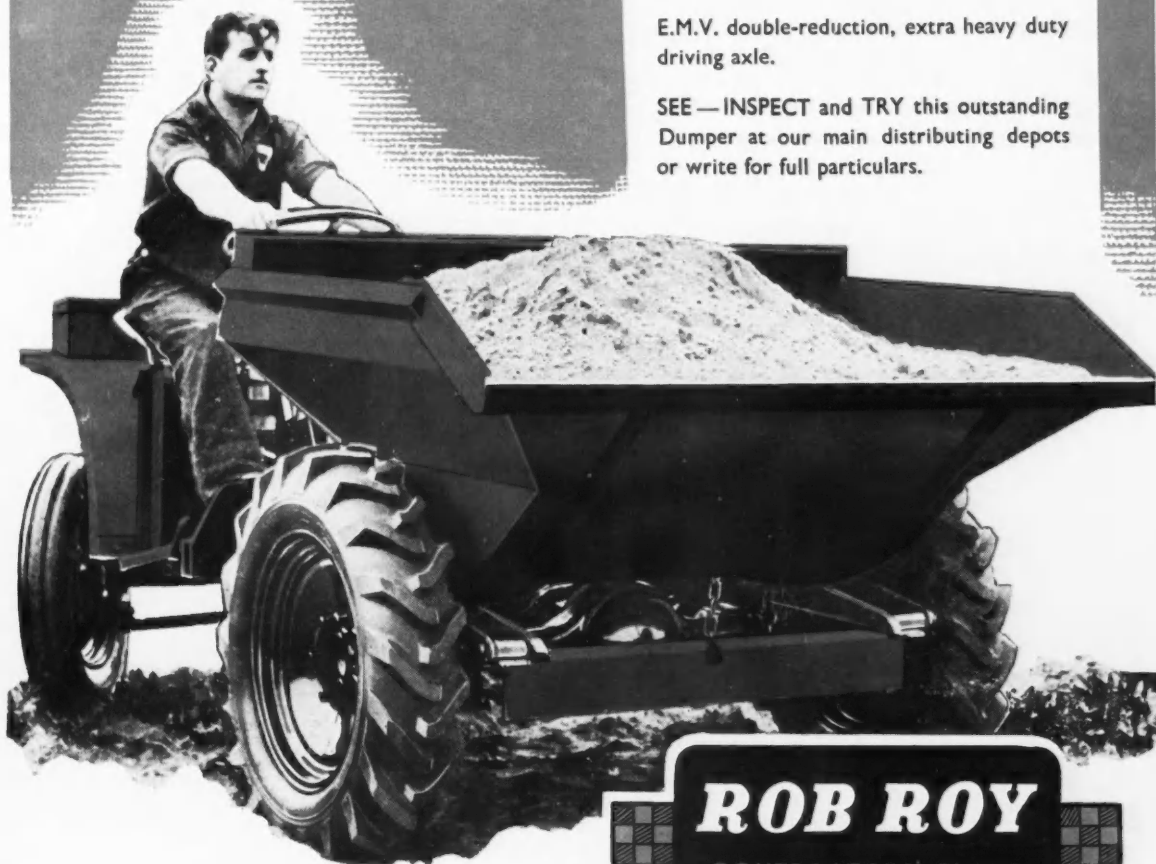
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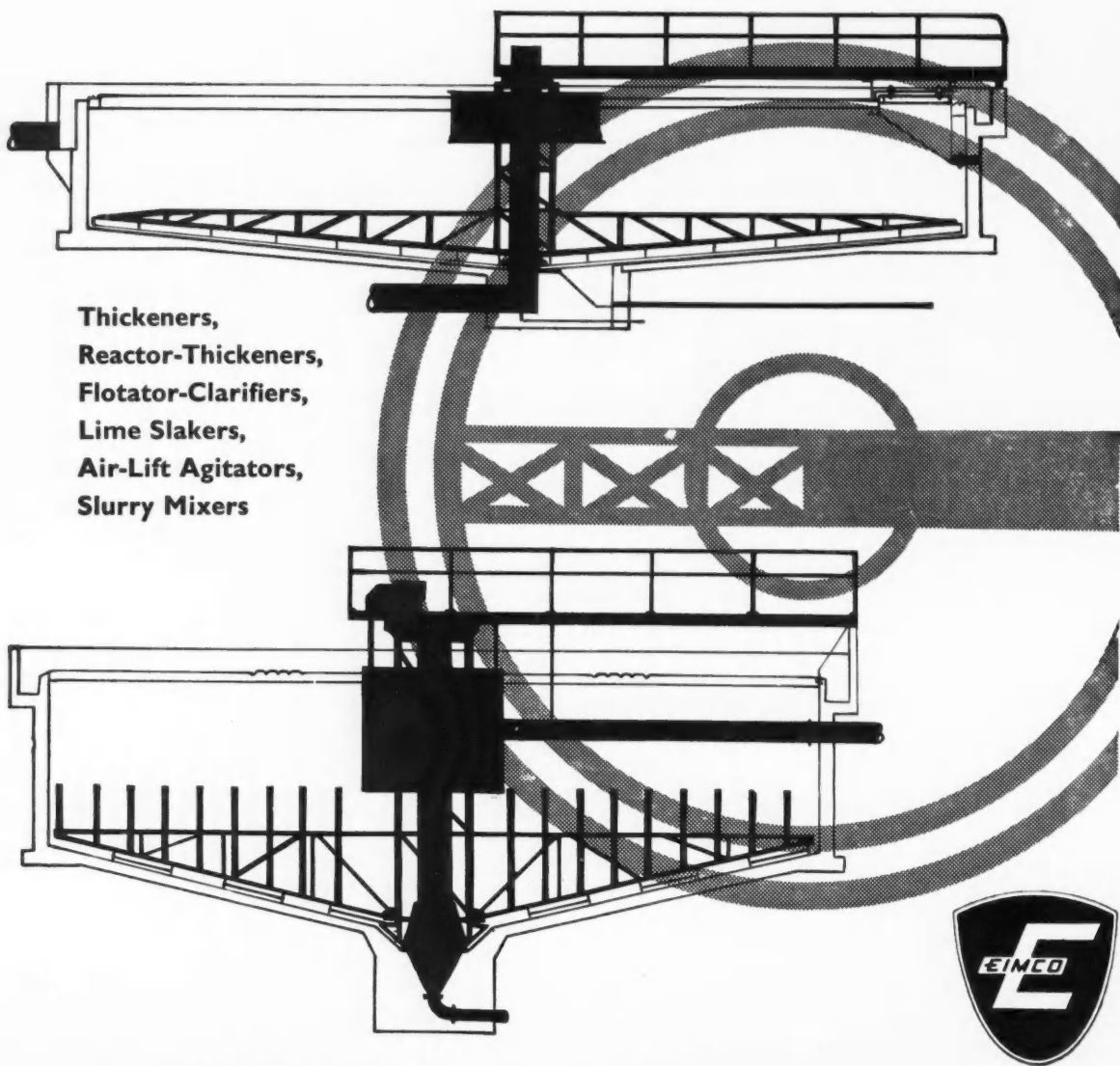
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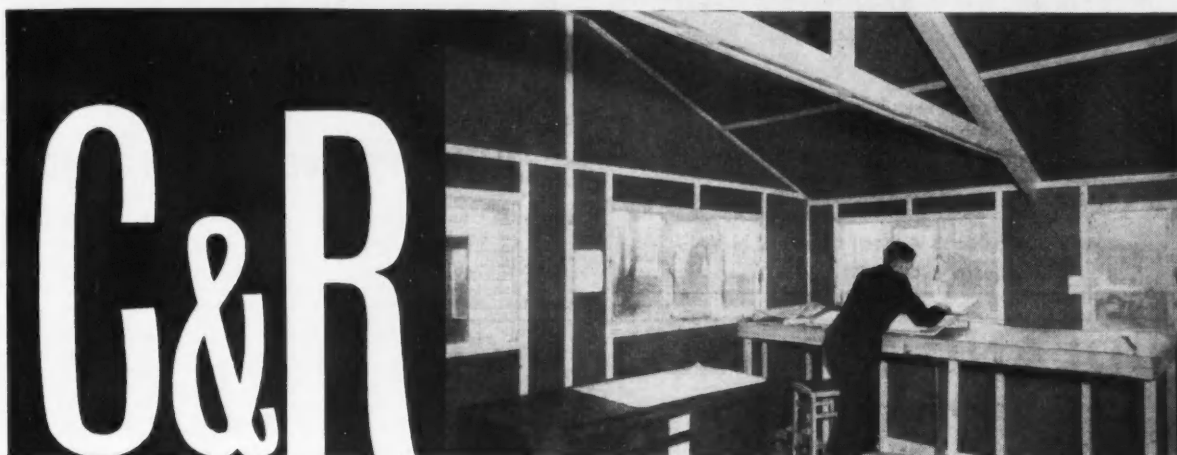
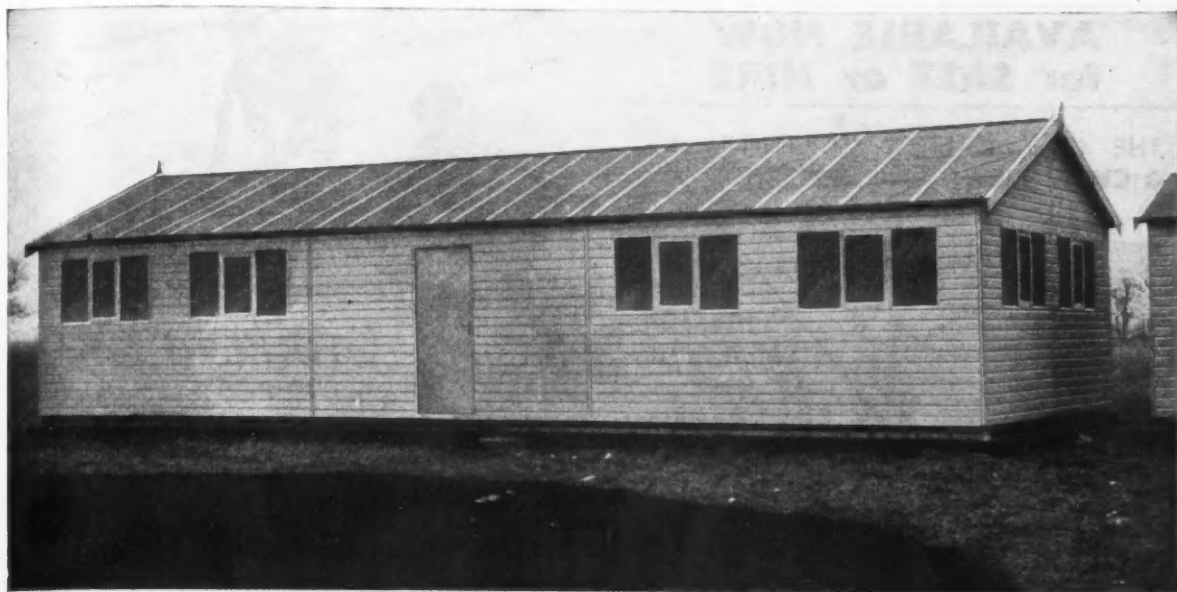
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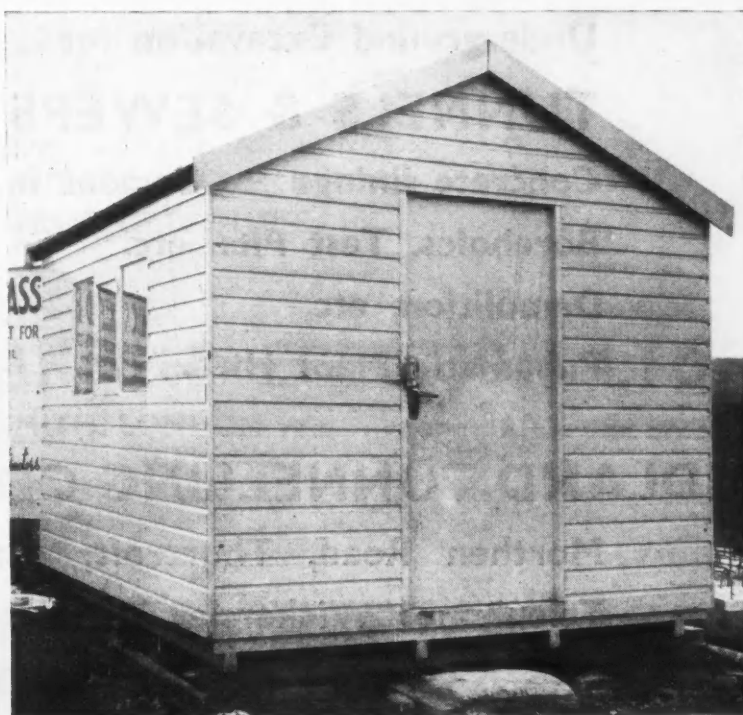
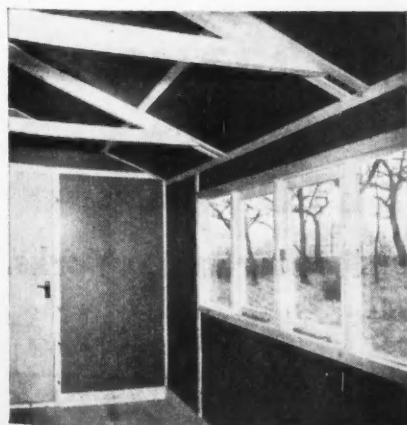
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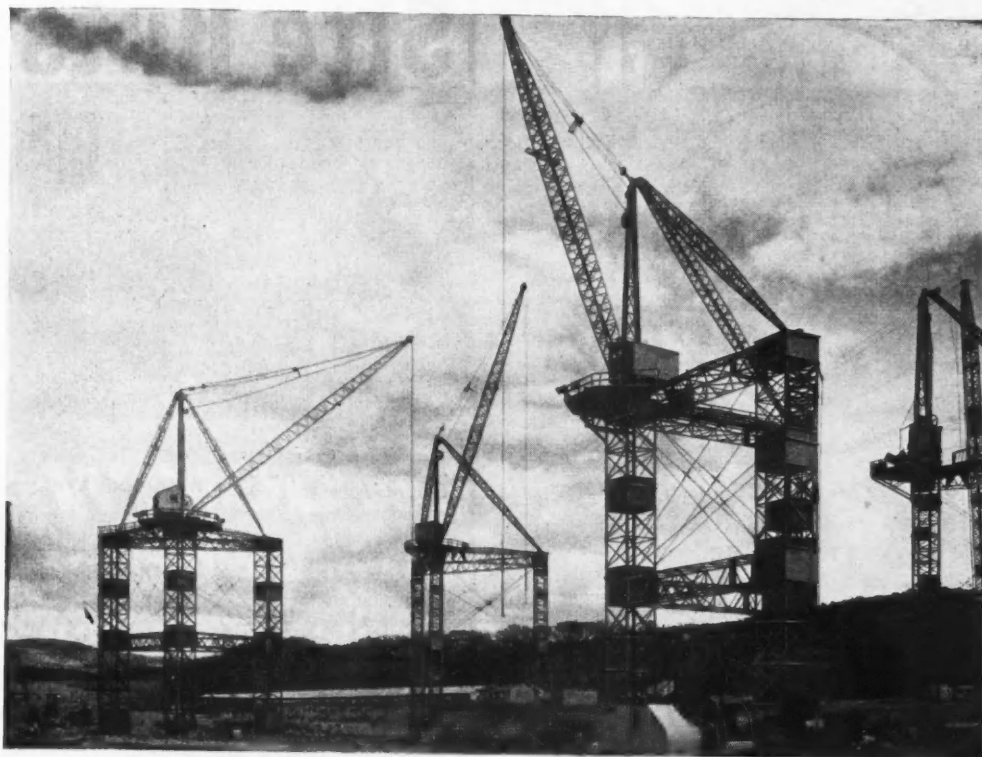
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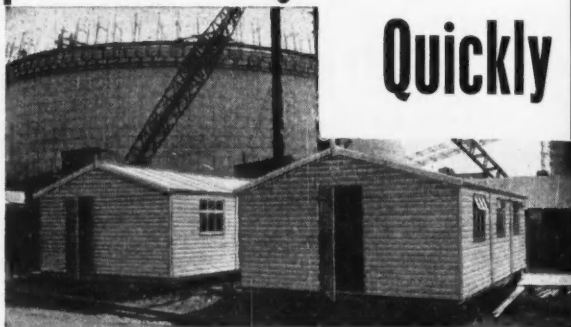
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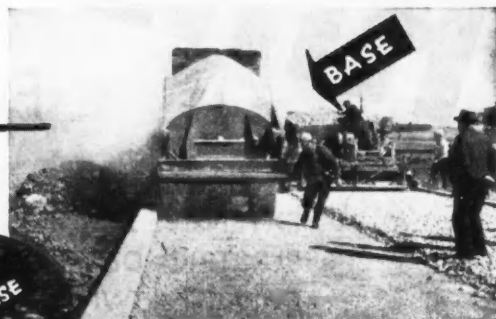
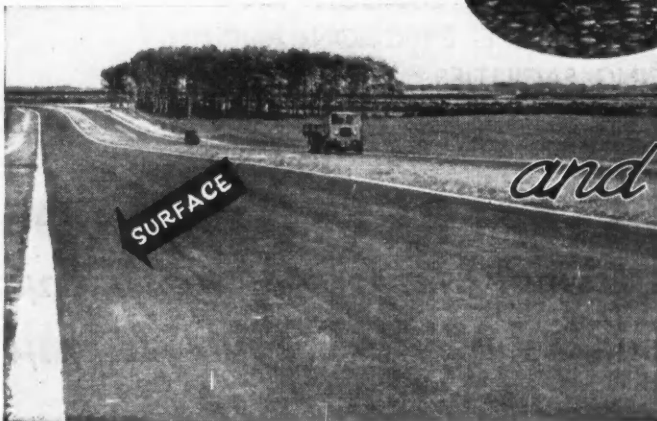
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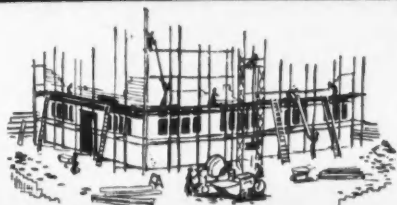
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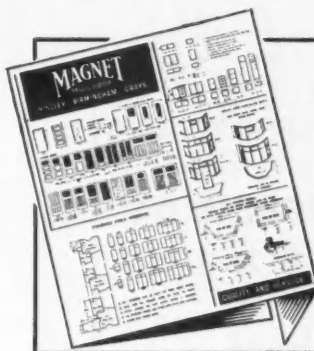
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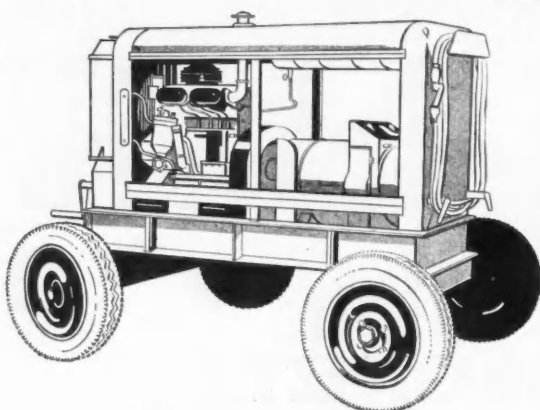


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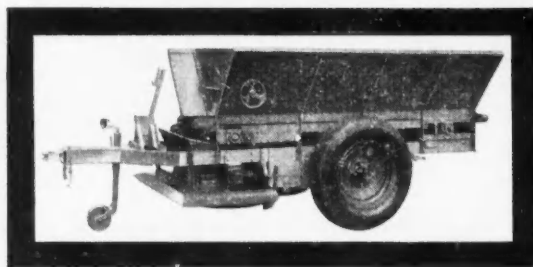


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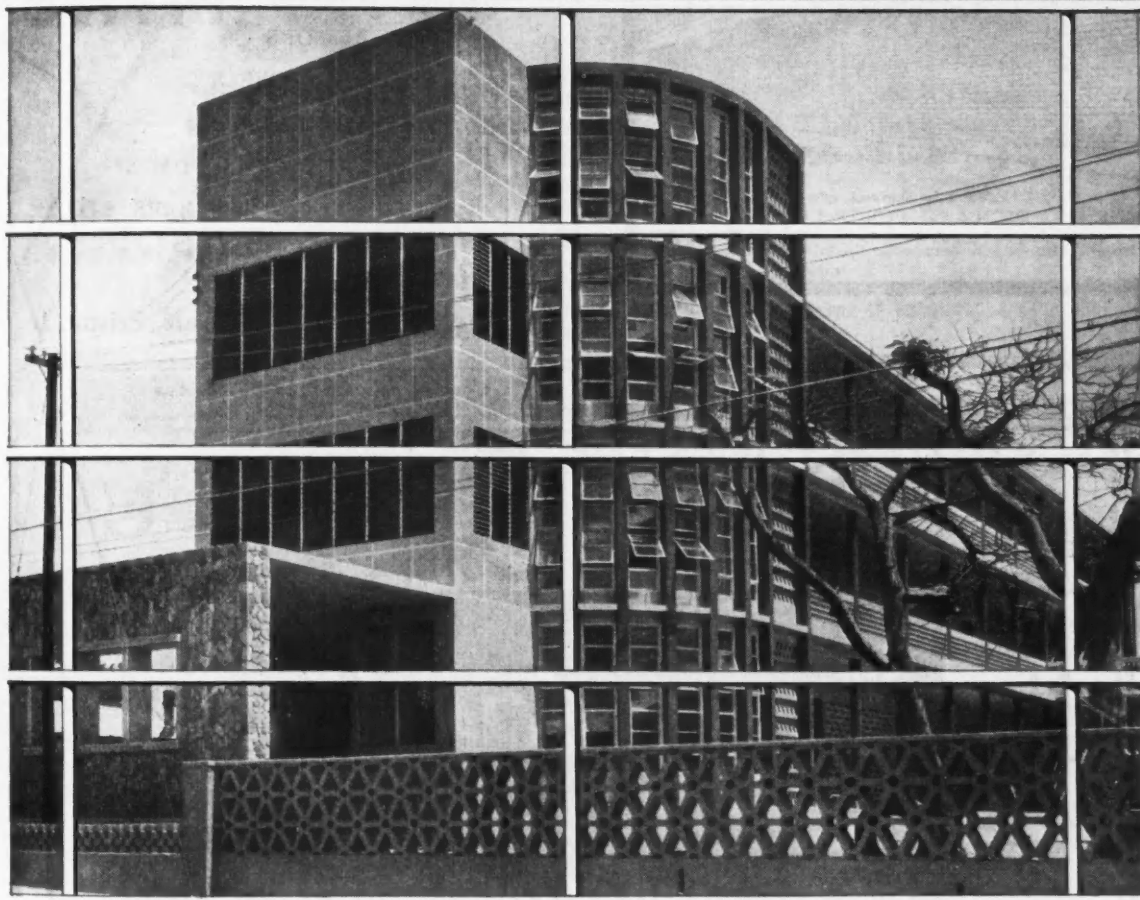


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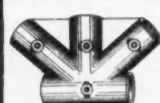






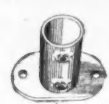




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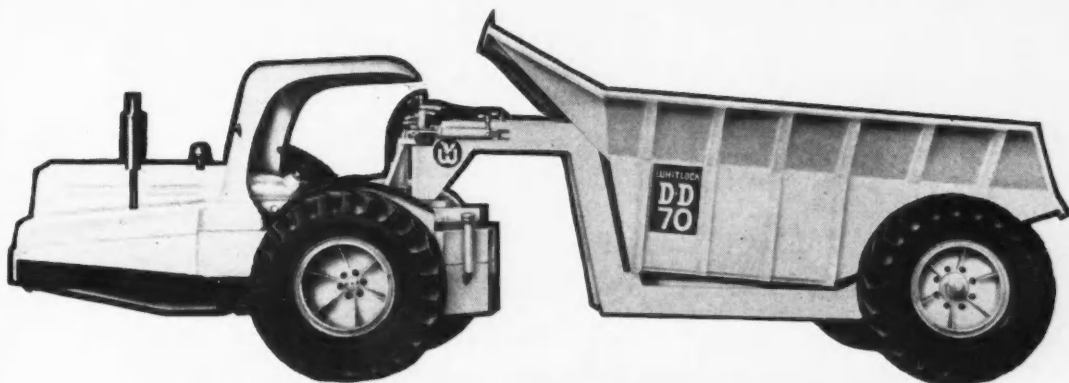
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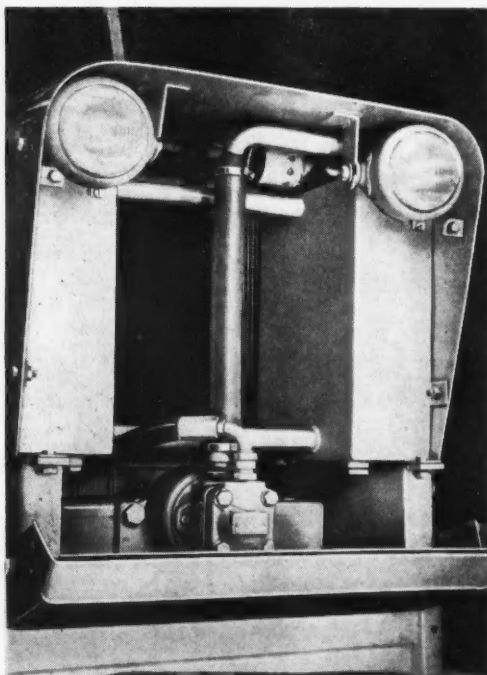
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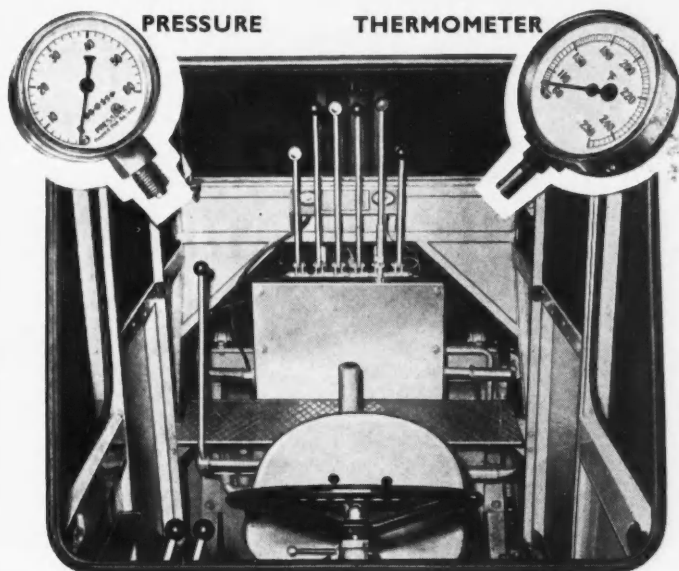
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Instruments supplied by the

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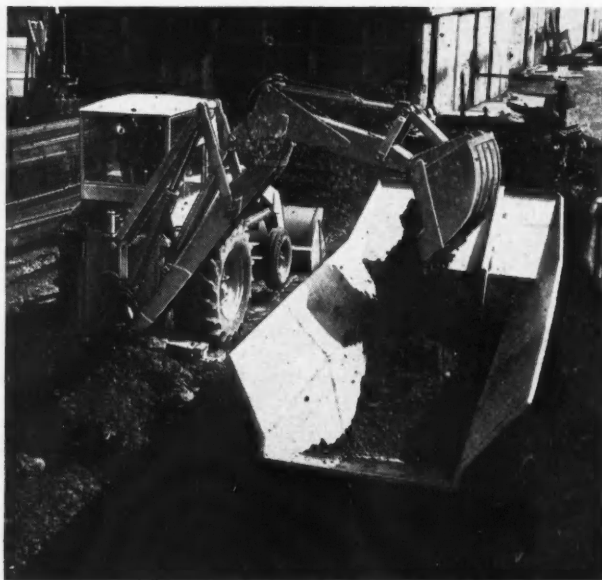
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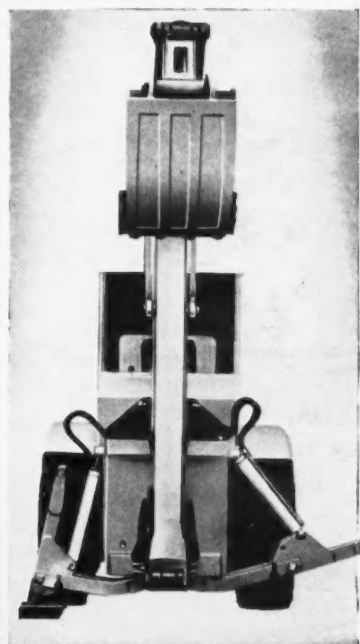
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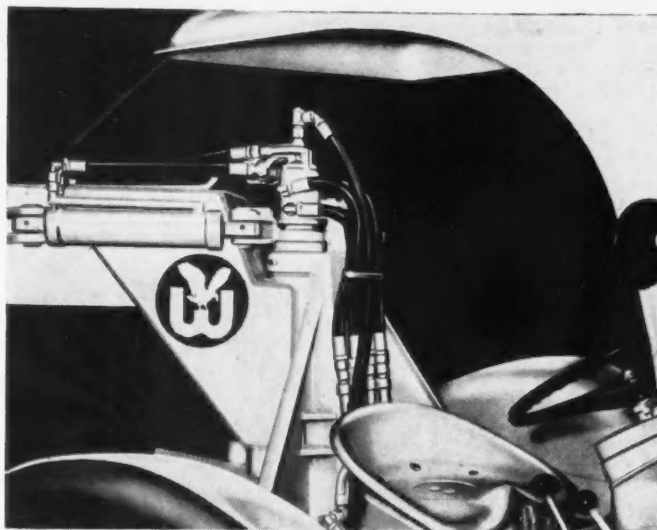
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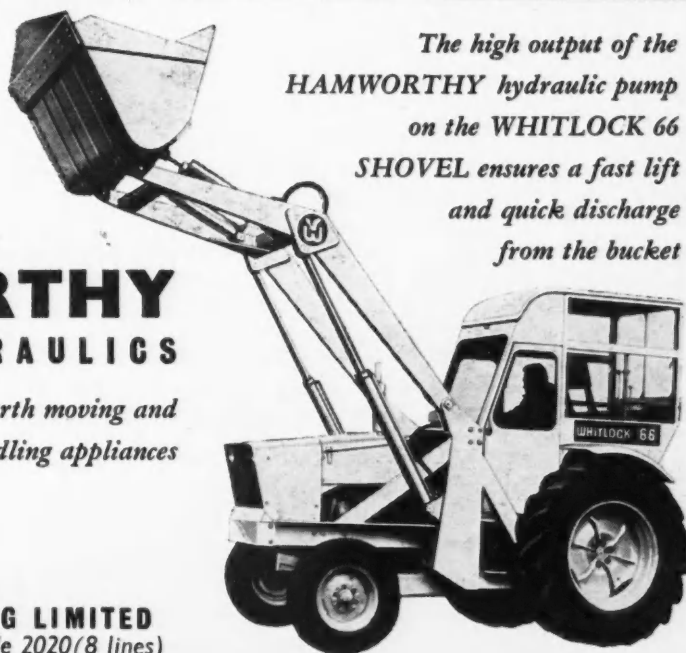
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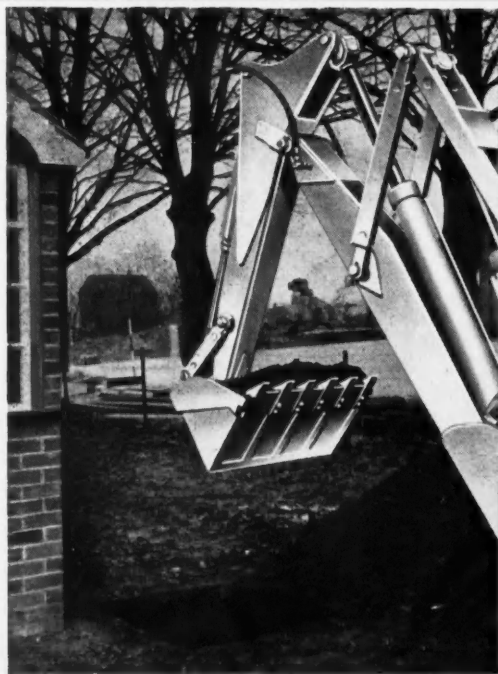
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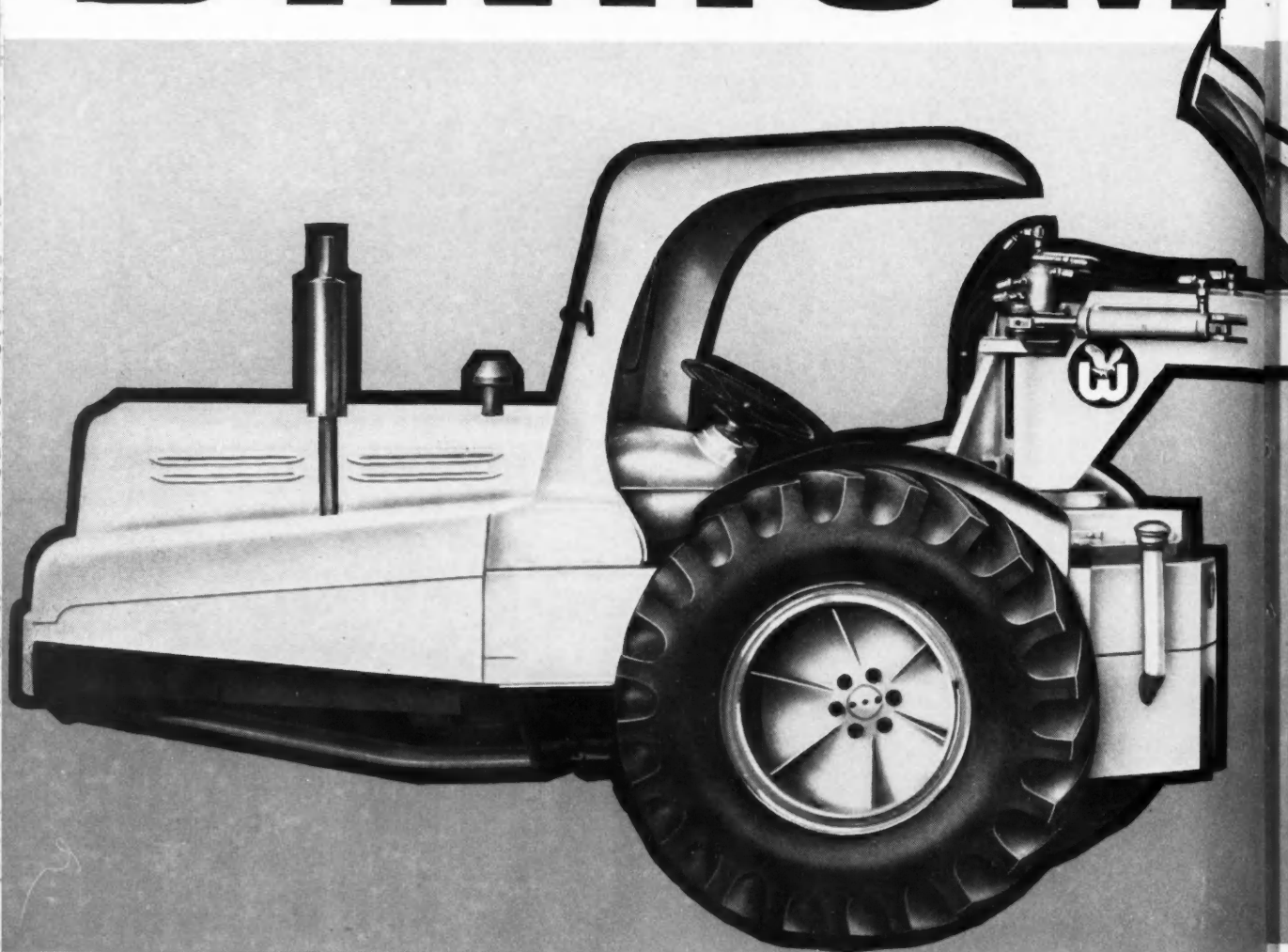
DINKUM DUMPER

DD 70



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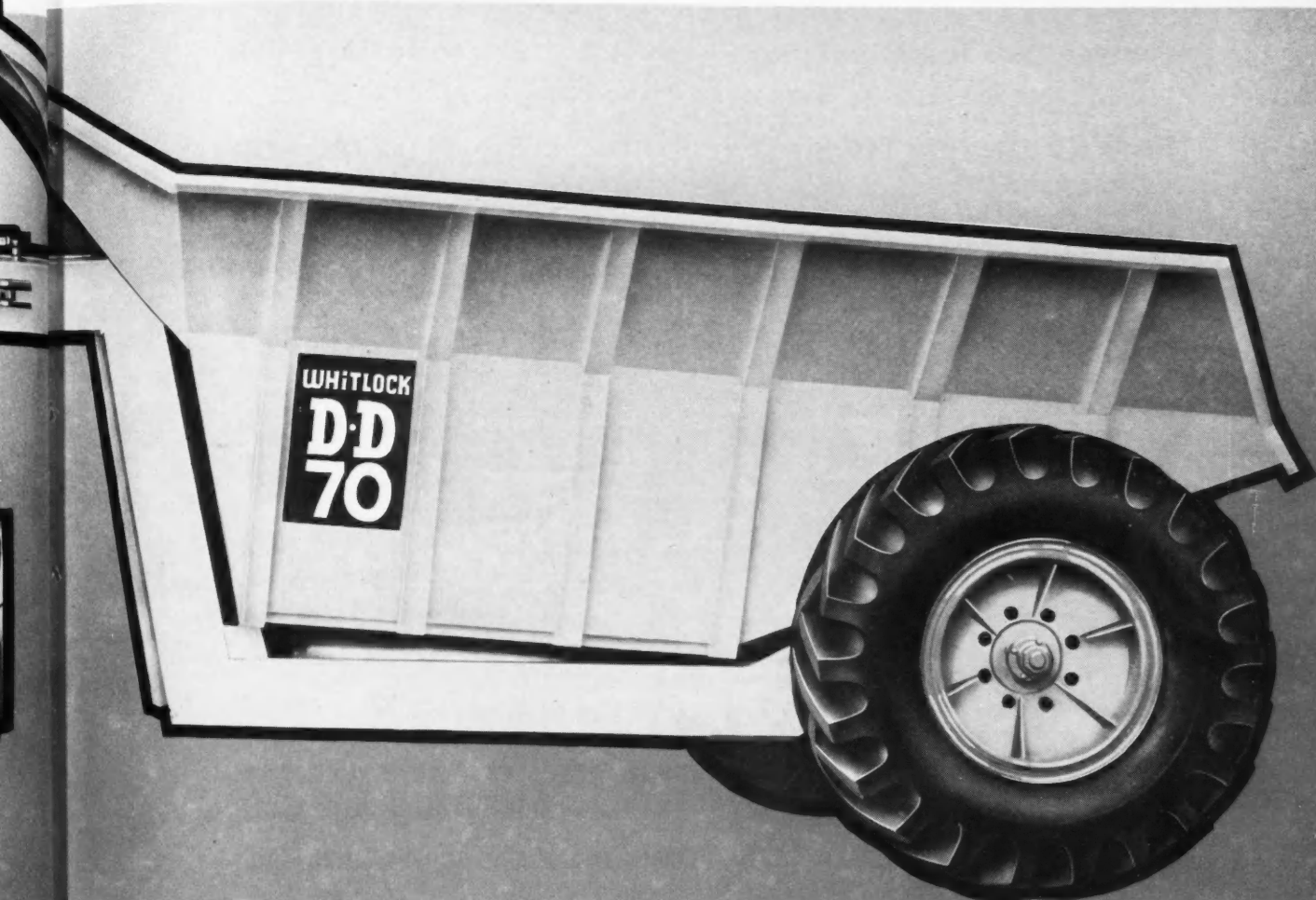
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WELFORD GRAVELS LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) Largest producers of all grades of washed aggregates in Bedfordshire and Northamptonshire. Regular deliveries anywhere.
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BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: Vigliant 2530.) (For details, see Leics.)
BULL BROS., S. AND L., LTD., 126A High Street, Winchester. (Tel.: 2264.) (See Hampshire.)
COFF, HARRY A., LTD., Buckhurst Hill, Chesham, Ascot, Berks. (Tel.: Ascot 1026/7.) Sand, all grades of washed aggregates, hardcore, clinker, ashes and hoggin.
CURTIS, I. AND SONS, LTD., Botley Works, Oxford. (Tel.: Oxford 41081/2/3.) Sand and all grades of washed aggregates, hardcore, clinker, gravel, near Abingdon. (Tel.: Abingdon 441.)
DANGERFIELD, F. J. & CO., LTD., 261A Finchley Rd., London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)
GRUNDON, S. (EWELEME), LTD., Ewelme, Oxon. (Tel.: Ewelme 20.) London Office (Tel.: Uxbridge 4156). All grades of washed aggregates. Path hoggin, broken stone, building sand.
HAINES, H. (WITNEY), LTD., Oxford Road, Witney. (Tel.: Witney 42.) All grades washed aggregates, hardcore, pitching and broken stone, Cotswold building and walling stone.
JANES AND CO., LTD., 2C Buckingham Avenue, Slough. Sand aggregates, hardcore, ashes, building and bulk excavation. (Tel.: Slough 20361/2/3.)
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NASH ROCKS STONE AND LIME CO., LTD., Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)
SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington (Tel.: 961), Salop.

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BICESTER STONE CO., LTD., Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 238.) Manufacturers and suppliers of all grades limestone, tarmacadam, dry, pitching stone, hardcore, etc.
COFF, HARRY A., LTD., Buckhurst Hill, Chesham, Ascot, Berks. (Tel.: 1026/7.) (See Berkshire.)
DANGERFIELD, F. J. & CO., LTD., 261A Finchley Rd., London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)
DRINKWATER, W. W. (WILLESDEN), LTD., Rush Green, Denham, Bucks. (Tel.: Denham 2241/2/3.)
GRUNDON, S. (EWELEME), LTD., Ewelme, Oxon. (Tel.: Ewelme 20.) London Office (Tel.: Uxbridge 4156). All grades washed aggregates. Path hoggin, broken stone, building sand.
HAINES, H. (WITNEY), LTD., Oxford Road, Witney. (Tel.: Witney 42.) All grades washed aggregates, hardcore, pitching and broken stone, Cotswold building and walling stone.
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MARLOW SAND AND GRAVEL CO., LTD., Westhorpe Pit, Little Marlow, Bucks. (Tel.: Marlow 379.)
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WELFORD GRAVELS LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Bedfordshire.)

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CAMBRIDGESHIRE

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NASH ROCKS STONE AND LIME CO., LTD., Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)
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CHESHIRE

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CASTLETON SAND AND GRAVEL QUARRIES, LTD., Pennant End Quarry, Whaley Bridge. (Tel.: Whaley Bridge 139.) Washed sand and gravel.
CAWOOD, WHARTON AND CO., LTD., Pistyll Gwyn Quarry, Llanarnmor, near Mold. (Tel.: Llanarnmor-vicinal 27.) Crushed limestone and tarred macadam, all grades.
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HULLAND GRAVEL CO., LTD., Cheshire, Stoke-on-Trent. (Tel.: Cheshire 2323/4, 2119 and 2195.) Manchester Office: 464 Wilbraham Road, Chorlton, Manchester, 21. (Tel.: Chorlton 2274/5.)
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HULLAND GRAVEL CO., LTD., Cheshire, Stoke-on-Trent. (Tel.: Cheshire 2323/4, 2119 and 2195.) Manchester Office: 464 Wilbraham Road, Chorlton, Manchester, 21. (Tel.: Chorlton 2274/5.)
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BULL BROS., S. AND L., LTD., 126A High Street, Winchester. (Tel.: 2264.) (See Hampshire.)
DANGERFIELD, F. J. AND CO., LTD., 261A Finchley Rd., London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)
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GILSON, S. C. AND SONS, LTD., Holcombe, near Bath. (Tel.: Stratton-on-the-Fosse 243.)
HALL AND CO., LTD., 8 Commercial Road, Parkstone (Tel.: 3379.)
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DURHAM

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DANGERFIELD, F. J. & CO., LTD., 261A Finchley Rd., London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)
FERRIS AND AGGREGATES, LTD., Barkingside, Essex. (Tel.: Hainault 5271/2-3001/2.) Pits at Orsett, near Stanford-le-Hope, and Uppminster. All grades of washed aggregates, plastering sand, building sand, hardcore and delivered, also hardcore and ashes.
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STANWAY CONTRACTS, LTD., Upper Edwards Hall, Eastwood, Southend-on-Sea. (Tel.: Eastwood 55161.) Sand and gravel pits at Rochford and Woodham Walter. Graded aggregates supplied or delivered.
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BENGRY AND SONS, LTD., Longmow, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)
COKE, T. F. (CHELTENHAM), LTD., 267 Gloucester Road, Cheltenham. (Tel.: Cheltenham 471/487.) Sand, graded gravel aggregates, hardcore, limestone, chippings, tarred and bituminous limestone, concrete blocks, fence posts, etc.
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IAYMAC, LTD., Wootton Bassett, Swindon. (Tel.: Wootton Bassett 391—5 lines.) (See Wiltshire.)
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GILSON, S. AND SONS, LTD., 166 High Street, Bath. (Tel.: Stratton-on-the-Avon 243.)
HALL AND CO., LTD., Baltic Wharf, Marine Parade Southampton. (Tel.: Southampton 234.) and at Portsmouth. Pits at Ringwood, Highbridge and Totton. Gravel aggregate, concreting, plastering and building sand.
HASKINS, G. AND SONS, Queen Street, Emsworth. For washed sands and graded aggregates, path and road gravels, hoggins, clinkers, ashes. (Tel.: Emsworth 271.)
MOREYS (VERWOOD), LTD., Verwood, Wimborne, Dorset. (Tel.: Verwood 234.) Concrete aggregates, building sand, hoggins, path gravel.
NEW MILTON SAND AND BALLAST CO., Lynton, New Milton, Hants. (Tel.: 37 and 566.) Guaranteed crushed, washed, screened and graded concrete aggregates. All sizes. Washed sharp and fine sands.
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PRIVETT, W. G. AND SONS, LTD., Drayton Lane, Portsmouth. (Tel.: Cosham 70059.) Concrete aggregates, building sand, hoggins, ashes, washed and graded filter media.
RALPH OF BASINGSTOKE, LTD., 37 Kemshott Lane, Basingstoke, Hants. (Tel.: 85.) Concrete aggregates, building sand, path gravel, hoggins, etc.
WESSEX SAND AND GRAVEL CO., LTD., 12 Hillside Avenue, Southampton. (Tel.: 56616.) Pits at Romsey and Fair Oak. Concrete aggregates, hoggins, building sand, etc.
WRAYSLEY SAND AND GRAVEL CO., LTD., Station Road, Theale, Reading, Berks. (Tel.: Theale 373.)

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BENGRY AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) Suppliers of all grades of crushed concrete aggregates, road metal, pitching stone, hardcore and coated macadam.
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HALL AND CO., LTD., Railway Yard, Orchard Road, Stevenage. (Tel.: 775.) and at Hatfield. Gravel aggregates, concreting, plastering and building sand.
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WEBB, G. CAMBRIDGE, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night).) (See Cambs.)
WINFIELD, HENRY, LTD., Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamstead 1208/9.) Pits at Hemel Hempstead, Watford, West Hyde, Rickmansworth. Concrete aggregates, hoggins, building sand.

HUNTINGDONSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)
FERRERS AND AGGREGATES, LTD., Northampton Road Quarries, Rushden (2354/5). (See Northants.)
GRAVEL PRODUCTS (MUNTS), LTD., St. Neots. Pits at St. Neots. (Tel.: 123.) Pits at Little Paxton, near St. Neots. (Tel.: St. Neots 308.) Deliveries in Berks., Hants. and South Cambs.
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WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Bedfordshire.)

KENT

BRATED SAND PITS, Brasted, Kent. (Tel. 586.) London office: 104 Ellery Street, S.E.15. (Tel.: New Cross 3337.) Soft and plastering sands, lime and sand-mix dry, hardcore, S.H. bricks, ashes, etc.
BROWN BROS. (SITTINGBOURNE), LTD., Chalkwell Road, Sittingbourne, Kent. (Tel.: Sittingbourne 330.) Sand, ballast, shingle, hardcore, clinker, breeze blocks, etc.
CLUBB, J., LTD., Dartford, Kent. (Tel.: Dartford 25431.) Pits in North Kent, Medway area and Sevenoaks district. All washed and crushed gravel aggregates, concreting and building sand.
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DIAMOND TREAD CO. (CHART), LTD., Swan Lane Quarries, Little Chart, Ashford, Kent. Quarry owners; tarmac, bituminous macadam and dry roadstone suppliers. All inquiries to Area Office: Ditton Court Quarry, Larkfield, near Maidstone, Kent. (Tel.: W. Malling 3444.)
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HARRIS, M. P. AND CO., LTD., Station Road, Paddock Wood, Kent. (Tel.: 365.) (See Sussex.)
TILBURY CONTRACTING AND DREDGING CO., LTD., Postley, Maidstone. (Tel.: Maidstone 55401/2/3.) Suppliers of tarrad, bituminous and dry roadstone, sea walling, asphalt fillers, Scotch granite and kerbing.

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BUCKTON QUARRY, Broken stone, all grades. (Tel.: Mossley 123.) Or write Main Road, Oldham.
CASTLETON SAND AND GRAVEL QUARRIES, LTD., Trows Lane, Castleton, nr. Rochdale. (Tel.: Castleton 57100.) Lee Quarries, Bacup. (Tel.: Bacup 287.) Washed pit sand, crushed washed stone aggregates: pitching stone.
CROXDEN GRAVEL, LTD., Cheadle, Stoke-on-Trent. Staffs. (Tel.: Tean 393.) Manchester Office: Blackfriars 3766/7. Plant capacity, 2,000 tons per day.
DUNNING AND SON, LTD. (See Shropshire.)
HARTLEY, JOHN W., LTD., Lundsfield Quarry, Carnforth, Lancs. (Tel.: Carnforth 100.) Large proportion of highest quality washed sand, clean washed natural pebble and crushed gravel aggregates for all construction purposes.
HILTON GRAVEL, LTD., Rice Street, Liverpool Road, Manchester, 2. (Tel.: Deansgate 5455 and 5456.) Quarries at Cheshire, Lancs. (Tel.: Tean 241.) And at Longton, Stoke-on-Trent. (Tel.: Longton 32196.)
HULLAND GRAVEL CO., LTD., Cheadle, Stoke-on-Trent. (Tel.: Cheadle 2323/4, 2119 and 2195.) Immediate delivery ex stock.
PENMANMAWR AND WELSH GRANITE CO., LTD., all sizes and gradings of crushed granite aggregate. Immediate delivery ex stock.
Liverpool and Preston Depots:
 Office: 7 Picton Road, Liverpool, 15. (Tel.: Sefton Park 7261.)
 Manchester Depot:
 Office: Cornbrook Road, Manchester, 15. (Tel.: Trafford Park 3630.)
ROUND-O QUARRIES, LTD., Helsby Street, Warrington. (Tel.: 35451—4 lines.) Building and concrete sand and shale.
TERN HILL SAND AND GRAVEL CO., LTD., Alimington Quarries, near Market Drayton, Staffs. (Tel.: Hales 12/3.) (See Staffs.)
TRENTHAM GRAVEL CO., LTD., Lordley Quarries, Willoughbridge, near Market Drayton, Salop. (Tel.: Pipe Gate 304/5.) All sizes crushed or natural washed gravels. Two-washed sharp concreting sand. Plant capacity: 2,000 tons per day.
WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) Local Offices and pits: Chorley 3923 and Wiga 82039.
WITHERS LIMESTONE, LTD., Black Lane Quarry, Carnforth. (Tel.: Carnforth 327.) Graded limestone aggregate to B.S.S., all sizes. Immediate delivery ex stock.
X.L. GRANITE (INGLETON), LTD., Head Offices: Clapham, via Lancaster. (Tel.: Clapham 318/9.) Works Tel.: Ingleton 231. All sizes and gradings of ingletton granite aggregate.

LEICESTERSHIRE

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London Office: VIGILANT 2530.) Best Leicestershire grey granite, dry and coated gradings to any specification, cold asphalt and wet mix. Prompt rail/road delivery.
CLIFFE HILL GRANITE CO., LTD., Markfield, near Leicester. (Tel.: Markfield 561/2/3.) Granite aggregates to B.S.S. All sizes. Tarrad and bituminous granite, concrete slabs and kerbs. Transit-mixed concrete.
DUSTON STONE QUARRIES, LTD., New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) (See Northamptonshire.)
ENDERBY AND STONEY STANTON GRANITE CO., LTD., 21 New Walk, Leicester. (Tel.: 56682.) Quarries at Enderby. London Offices: 29 Dorset Square, N.W.1. (Tel.: Amb. 1141.)
GRAVEL HILL SAND QUARRIES, LTD., Prior Park, Ashby-de-la-Zouch. (Tel.: 79.) Works: Hartshorne, Derbs. Yellow screened plastering and building sand, all to B.S.S.
HILTON GRAVEL, LTD., Hemington Fields, near Sharlow, Derby. (Tel.: Sharlow 266.)
HOVERINGHAM GRAVEL CO., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

LEICESTERSHIRE

MOUNTSOREL GRANITE CO., LTD., 21 New Walk, Leicester. (Tel.: 56682.) Quarries at Mountsorel, near Loughborough. Main pink granite a speciality. London Office: 29 Dorset Sq. N.W.1. (Amb. 1141.)
WANLIP GRAVELS, LTD., Wanlip Road, Syston, Leicester. Any size or grading, scientifically balanced ballast. All to B.S.S. (Tel.: Syston 2327 and 2797.)
WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Northamptonshire.)
WREAKE VALLEY GRAVELS CO., LTD., Melton Mowbray. (Tel.: Pits—Rotherby 205; near Office Melton 2488.) All grades washed aggregates and sand.

LINCOLNSHIRE

CONINGSBY SUPPLY CO., LTD., Registered Office: The Broadway, Woodhall Spa, Lincs. (Tel.: Woodhall Spa 3150.) Screened limestone, hardcore, pitching, filling, flint, L-hosier. Ex quarries or delivered.
DOW-MAC (PRODUCTS), LTD., Tallington, Stamford. All grades of washed sand and gravel. (Tel.: Market Deeping 2301.)
EAST MIDLANDS BUILDERS' SUPPLY CO., 21 Castle-dyke West, Barton-on-Humber, Lincs. (Tel.: Barton 2189.) All grades washed sand and gravel, roadstone, hardcore, washed silica sand.
GIBBONS, F. B. AND SONS, LTD., Registered Office: Welby House, Market Deeping, near Peterborough. (Tel.: Market Deeping 3321/2383.) Pits at Langar, near Peterborough. (Tel.: Market Deeping 2210.) All grades washed sand and aggregates.
HARTSHOLME GRAVEL AND SAND CO., LTD., Hartsholme Wood, Doddington Road, Lincoln. Sole selling agents: Hartsholme Sales, Ltd., 17 West Parade, Lincoln. (Tel.: Lincoln 23391.)
HOVERINGHAM GRAVEL CO., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)
HURDIS, J. W., LTD., Victoria Street, Grimsby. (Tel.: Grimsby 3657) and Calistor. (Tel.: Calistor, Lincs. 2911.) Building, plastering, concreting sand, also gravel, ballast, hoggins and roadmaking materials.
PETERBOROUGH QUARRIES, LTD., Sandylands, Mavey, Peterborough. (Tel.: Market Deeping 2333—3 lines.) Roadstone, concrete, hardcore and broken stone. (See also Northants.)
POLLARD, C. AND SON (TALLINGTON), LTD., Walk House, Langtoft, Peterborough. Pits at Langton, near Lincoln. (Tel.: Market Deeping 2140.) All grades washed sand and aggregates. For "Supercrete" ready mixed concrete, phone Market Deeping 3152.
TRENTFORD GRAVELS, LTD., Registered Office: Deansgate Grimsby. (Tel.: Grimsby 5354.) Washed and graded gravel and sand, roadstone, hardcore, slag, tarmac, ashes, etc. Pits and quarries throughout the county.

LONDON

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)
COX, H. AND SONS, LTD., 33 Southampton Way, Camberwell, S.E.5. (Tel.: Rodney 2215—3 lines.)
DANGERFIELD, F. J. AND CO., LTD., 261A Finchley Road, N.W.3. (Tel.: HAMSTEAD 8044/8.) Granite limestone, slag, coated or dry, all sizes and pitching, granite kerb and setts, rebar quarz and other minerals by road or rail, or ex London stock.
DORSET LTD., Bumper Lane, Easton, Portland, Dorset. (Tel.: Portland 207/8.) (For details, see Dorset.)
DRINKWATER, W. W. (WILLESSEN), LTD., Dudden Hill Lane, Willesden, N.W.10. (Tel.: GLADSTONE 6400/5.) Pits: Rush Green, Denham, Bucks. (Tel.: Denham 2441/2/3.) Also Staines Road, Hounslow Heath, Middlesex. (Tel.: Hounslow 6222/3.)
GABRIEL, C. LTD., Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Enfield and Hertford.
GREENHAM SAND AND BALLAST CO., LTD., Chertsey Road, Feltham. (Tel.: Feltham 2285/7.) Pits at Hounslow, Feltham and Staines. Concrete aggregates, plastering and building sand.
HALL AND CO., LTD., Chantrey House, Eccleston Street, S.W.1. (Tel.: Sloane 7122.) and at East Dulwich, Poplar and Wandsworth. Gravel aggregates, concreting and building sand.
KEEN, W. J. AND SONS, 18 Granville Road, Epping, Essex. (Tel.: Epping 2520.) All sands, ballasts, shingle and hardcore supplies.
LONDON BALLAST CO., LTD., (Tel.: Paddington 5054.) 55A Porchester Terrace North, Paddington, W.2.
READ, P. T., LTD., 91 St. John's Road, Bethnal Green, E.C.1. (Tel.: 9128/9.) All sands, ballast and shingles supplied and delivered; also ready mixed concrete. Pits: Fairlop Airfield, Forest Road, Ilford, Essex. (Tel.: Hainault 6111/2/3.)
ROADS RECONSTRUCTION (1934), LTD., Stockley Lane, West Drayton, Middlesex. (Tel.: West Drayton 3041.) All sizes broken limestone, dry and coated to British Standards.

MERIONETHSHIRE

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington (Tel. 961), Salop.

MIDDLESEX

CROSS, GEO. C. AND CO., LTD., Uxbridge Road, Southall. (Tel.: Southall 2264/5/6.) Concrete aggregates, hardcore, excavations, demolitions.
DRINKWATER, W. W. (WILLESSEN), LTD., Staines Rd., Hounslow Heath, Middlesex. (Tel.: Hounslow 6222/3.)
GABRIEL, C. LTD., Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Enfield and Hertford.
GREENHAM SAND AND BALLAST CO., LTD., Chertsey Road, Feltham. (Tel.: Feltham 2285/7.) Pits at Hounslow, Feltham and Staines. Concrete aggregates, plastering and building sand.
GRIMMOND, S., 79 Hillingdon Road, Hillingdon, Middlesex. (Tel.: Uxbridge 4156.) Sand, ballast, shingle, hardcore, ashes, excavation and demolition.
HALL AND CO., LTD., Chantrey House, Eccleston Street, S.W.1. (Tel.: Sloane 7122.) and at Ashford and Brentford. Pit at Bedford, near Feltham. Gravel aggregates, concreting, plastering and building sand.
LONDON BALLAST CO., LTD., (Tel.: Paddington 5084.) 55A Porchester Terrace North, Paddington, W.2.
READ, P. T., LTD., 91 St. John's Road, Bethnal Green, E.C.1. (Tel.: 9128/9.) All sands, ballast and shingles supplied and delivered; also ready mixed concrete. Pits: Edmondton Gravel Pit, Montagu Road, N.9. (Tel.: Shoreditch 9128/9.) and Fairlop Airfield, Forest Road, Ilford. (Tel.: Hainault 6111/2.)

CONTRACTORS' GUIDE TO AGGREGATES

MIDDLESEX

STUART MACEY, LTD., Gordon Road, High Wycombe. (Tel.: High Wycombe 2591/2.)

THAMES SAND AND GRAVEL CO., LTD., Fordbridge Road, Shepperton. (Tel.: Walton-on-Thames 23616.) Gravel aggregates, concreting, plastering and building sand.

WRAYSBURY SAND AND GRAVEL CO., LTD., Pits at Wraybury. (Tel.: Wraybury 164.) Gravel aggregates, concreting, plastering and building sand.

MID-WALES

BENGRI AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

NASH ROCKS STONE AND LIME CO., LTD., Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

OLD RADNOR TRADING CO., LTD., Quarries in Radnorshire. (Kingston 11.) (See Herefordshire.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington. (Tel. 961.) Salop.

TERN HILL SAND AND GRAVEL CO., LTD., Alimington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

MONMOUTHSHIRE

IN-SITU CONCRETE, LTD., Victoria Works, Ebbw Vale (Tel. 3032), and Phoenix Works, Cardiff (Cardiff 63311), for limestone and slag aggregates, ready-mixed concrete, tarmacadam, media, filling, etc., kerbs and pavings.

MONMOUTHSHIRE ASSOCIATED QUARRIES, LTD., Head Office: 38 Chestnut Road, Newport, Mon. (Tel.: Newport 59311/2.) Suppliers of all grades of concrete aggregates, road metal, pitching stone, tarmacadam and bituminous macadam in limestone, dolomite and blue pennant stone. Quarries throughout the county.

WHITECLIFF QUARRIES AND BRICKWORKS, LTD., Coleford, Glos. (Tel. 3158/9.) (See Gloucestershire.)

MONTGOMERYSHIRE

NASH ROCKS STONE AND LIME CO., LTD., Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington. (Tel. 961.) Salop.

NORFOLK

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

JOHNSON, P. C. H., LTD., Station Road, Terrington St. Clement, near King's Lynn. (Tel.: Terrington St. Clement 248.) Washed and screened gravel, roadstone, washed sharp and fine sands.

SNETTERTON STONE QUARRIES, LTD., Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamsted 1208/9.) Concrete aggregates, building sand.

THORPE GRAVEL PITS, LTD., Harvey Lane, Norwich. (Tel.: Norwich 2530.) Suppliers of washed and graded aggregates, stone and gravel delivered to all parts of Norfolk and Suffolk.

NORTHAMPTONSHIRE

AMEY'S AGGREGATES, LTD., Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billing, Northampton. (Tel.: Cogenhoe 464) for washed and graded aggregates to B.S.S.

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

BICESTER STONE CO., LTD., Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 238.) Manufacturers and suppliers of all grades limestone tarmacadam, dry, pitching stone, hardcore, etc.

BILLING GRAVEL CO., LTD., Station Road, Billing, Northampton. (Tel.: Cogenhoe 219.) London Office: 23 Berkeley Square, W.1. (Tel.: Mayfair 6341.)

BRAYBROOK, E. W., LTD., Newton Road, Higham Ferrers, Northants. (Tel.: Rushden 334 and 3345.) All grades of washed and graded aggregates to B.S.S., building sand, hardcore.

DOW-MAC (PRODUCTS), LTD., Tallington, Stamford. All grades of washed sand and gravel. (Tel.: Market Deeping 2301.)

DUSTON STONE QUARRIES, LTD., New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) Producers of building and walling stone roadstone, hardcore, broken stone, ashes, sand, gravel and hoggin. Immediate delivery throughout Northamptonshire.

FERRERS AND AGGREGATES, LTD., Northampton Road Quarries, Rushden, Northants. (Tel.: Rushden 2354/5.) Largest producers in the county of all grades of high-quality concrete aggregate to B.S.S. Deliveries throughout Northamptonshire and adjoining counties.

GIBBONS, F. B., AND SONS, LTD., Welby House, Market Deeping, Peterborough. (Tel.: Market Deeping 3321 2383.) (See Lincolnshire for details.)

HOVERINGHAM GRAVEL CO., Hoveringham, Nottingham. (Tel.: Lowham 3171—15 lines.) (For details see Nottinghamshire.)

KETTON STONE CO. (Prop. Andrew's Garage), Ketton, near Stamford. (Tel.: Ketton 206.) Hardcore, roadstone, crushed stone, top soil, silica clay. Quarries at Ketton.

MACKANESE, A. J., LTD., Ransome Road, Northampton. (Tel.: Northampton 589.) Producers of all grades of washed aggregates. Building sand, Milmortar (lime/sand mortar). Prompt deliveries.

NINE BARGE AND LIGHTER CO., LTD., Market Chambers, Peterborough. (Tel.: 5534/5), and Ship End Quarries, Wansford, near Peterborough. (Tel.: Wansford 384/5.) Roadstone, hardcore, broken stone, ballast, ashes, silica clay and sand.

NEWARK (PETERBOROUGH) SAND AND GRAVEL CO., LTD., 127 Eastfield Road, Peterborough. (Tel.: Peterborough 2091.) All grades washed and screened gravel and sand.

PETERBOROUGH QUARRIES, LTD., Sandylands, Mabley, Peterborough. (Tel.: Market Deeping 2355.) Eight quarries supplying all grades of hardcore and broken stone. Also Wetmix at Yarwell, Wansford. All grades gravel and sand at Mabley.

NORTHAMPTONSHIRE

POLLARD, C., AND SON (TALLINGTON), LTD., Walk House, Langtoft, Peterborough. (Tel.: Market Deeping 2140.) (See Lincolnshire for details.)

STORTON, F. E., LTD., Weedon Road, Northampton. (Tel.: Northampton 3358.) Producers of washed gravel and sand to B.S.S.

WELFORD GRAVELS, LTD., Head Office: Goldington, Bedford. (Tel.: 4567/8/9.) Largest producers of all grades of washed aggregates in Northamptonshire and Bedfordshire. Regular deliveries anywhere. Local office and pits: Fortify Ford. (Tel.: Welford 256.)

NORTH WALES

CAWOOD, WHARTON AND CO., LTD., Pityll Gwyn Quarry, Llanarnam, near Mold. (Tel.: Llanarnam-y-al 27.) Crushed limestone and tarred macadam, all grades.

CHESHIRE AND NORTH WALES TARRED MACADAM CO., LTD., Llanarnam, near Mold. (Tel.: Llanarnam-y-al 43.) Hard, broken limestone, dry and coated to B.S.S. Inquiries to Registered Office—Market Chambers, Tower Square, Tunstall, Stoke-on-Trent. (Tel.: Stoke-on-Trent 88094.)

ENSTON BROS., Llwyn Isaf Quarry, Clynog Fawr, Caernarvon. (Tel.: Clynog Fawr 297/8.) All sizes crushed, washed natural sand and gravel. Highest quality. Precast concrete products, ex our Griffiths Crossing Factory, Caernarvon. (Tel.: Caernarvon 2535/6.) Crushed granite ex our quarry, Pengwern and Gwydyr Quarries, Ltd., Trefriw, Llanwrthwl, Denbigh. (Llanwrthwl 38.)

PENMAENMAWR AND WELSH GRANITE CO., LTD., Quarries at Penmaenmawr. (Tel. 2256/8), and at Trevor. (Tel.: Clynogfawr 223.) Caernarvonshire. All sizes and gradings of crushed granite aggregate. Any quantity per day: immediate delivery ex stock. Coated granite also available.

RUTHIN AND DENBIGH TARMACADAM CO., LTD., Denbigh. (Tel.: Denbigh 75.) Lime, limestone, carbonate of lime, tarmacadam, etc. Also inquiries to Lunt Bros., Ltd., 23 Colmore Row, Birmingham. (Tel.: Birmingham 4006—4 lines) and Lunt Bros., Ltd., Stourbridge. (Tel. 5201—6 lines.)

TERN HILL SAND AND GRAVEL CO., LTD., Alimington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

NOTTINGHAMSHIRE

AIZLEWOOD, DOUGLAS E., Bow Bridge, Rotherham. (Tel.: Rotherham 2622.) Crushed and graded limestone: all grades of washed gravel and sands.

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

GLEN QUARRIES, LTD., Central Chambers, Wellgate, Rotherham. (Tel.: Rotherham 5223.) Crushed and graded stone, concreting sand, building sand, plastering sand and crushed gravel: could be collected ex quarry or delivered.

GUNTHORPE GRAVELS (1958), LTD., (Tel.: Nottingham 77357; and Works: Lowdham 2131.) (An associate company of T. C. Campbell, Ltd.) All grades of washed gravel and sand to B.S.S.

HOVERINGHAM GRAVEL CO., LTD., Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) Quarries at Hoveringham, Holme, Pierrepont Colwick, Bleasby and Newark. All grades of washed gravel and sand to any specification. Crushed quartzite for surface dressing of roads a speciality. Plant capacity 8,000 tons per day.

NEWARK GRAVEL AND CONCRETE CO., LTD., Grove Street, New Balderton, Newark, Notts. (Tel.: Newark 401.) All grades washed sand and aggregates.

NORTH NOTTS. GRAVEL CO., LTD., Bellmoor, Retford, Notts. (See Yorkshire.)

PRESTWICH, WILLIAM, AND SONS, LTD., Dronfield, Derbyshire. (Tel.: Sutton 278 and 275.) Derbyshire limestone and slag for all purposes and to all specifications. "Haddon" foamed slag blocks.

SALISBURY AND WOOD, LTD., Matlock, Derbyshire. (Tel.: 272/273.) (For details, see Derbyshire.)

OXFORDSHIRE

AMEY'S AGGREGATES, LTD., Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billing, Northampton. (Tel.: Cogenhoe 464) for washed and graded aggregates to B.S.S.

BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD., near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

BENGRI AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

BICESTER STONE CO., LTD., Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 238.) Manufacturers and suppliers of all grades limestone, tarmacadam, dry, pitching stone, hardcore, etc.

CURTIS, J., AND SONS, LTD., Botley Works, Oxford. (Tel.: Oxford 41081/2/3.) Sand and all grades of washed aggregates. Pits at Radley, near Abingdon. (Tel.: Abingdon 441.)

DANGERFIELD, F. J., AND CO., LTD., 261A Finchley Road, London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)

DIX, G. W., AND SON, LTD., Freeland, Oxon. (Tel.: Freeland 234.)

DUSTON STONE QUARRIES, LTD., New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) (See Northamptonshire.)

GRUNDON, S. (EWEIME), LTD., Eweime, Oxon. (Tel.: Eweime 20.) London Office (Tel.: Uxbridge 255.) All grades washed aggregates. Path hoggin, broken stone, building sand.

HAINES, H. (WITNEY), LTD., Oxford Road, Witney. (Tel.: Witney 12.) All grades washed aggregates, hardcore, pitching and broken stone, Cotswold building and walling stone.

SNETTERTON STONE QUARRIES, LTD., Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamsted 1208/9.) Roadstone, Cotswold building and walling stone.

WRAYSBURY SAND AND GRAVEL CO., LTD., Theale, Reading, Berks. (Tel.: Theale 373.)

RADNORSHIRE

BENGRI AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

CLEE HILL TRANSPORT AND ROLLING CO., LTD., Ludlow, Salop. (Cleehillstone 284.) (See Shrops.)

RADNORSHIRE

NASH ROCKS STONE AND LIME CO., LTD., Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

OLD RADNOR TRADING CO., LTD., Quarries in Radnorshire. (Tel.: Kingston 11.) (See Herefordshire.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington. (Tel. 961.) Salop.

RUTLAND

GIBBONS, F. B., AND SONS, LTD., Welby House, Market Deeping, Peterborough. (Tel.: Market Deeping 3321 2383.) (See Lincolnshire for details.)

HOVERINGHAM GRAVEL CO., Hoveringham, Nottingham. (Tel.: Lowham 3171—15 lines.) (For details see Nottinghamshire.)

KETTON STONE CO. (Prop. Andrew's Garage), Ketton, near Stamford. (Tel.: Ketton 206.) Hardcore, roadstone, crushed stone, top soil, silica clay. Quarries at Ketton.

PETERBOROUGH QUARRIES, LTD., Sandylands, Mabley, Peterborough. (Tel.: Market Deeping 2355.) Quarry at Greatham, all grades of broken stone and hardcore. (See also Northamptonshire.)

POLLARD, C., AND SON (TALLINGTON), LTD., Walk House, Langtoft, Peterborough. (Tel.: Market Deeping 2140.) (See Lincolnshire for details.)

SCOTLAND

KEIR AND CAWDER, LTD., Kirkintilloch Road, Bishopbriggs. (Tel.: Bishopbriggs 3200.) All grades washed sand and gravel aggregates.

SHROPSHIRE

BALLIDON QUARRIES, LTD., Ballidon, near Ashbourne, Derbyshire. (Tel.: Parwich 201 and 202.) Clean and graded dry limestone to B.S.S., all sizes, coated limestone to B.S. 802 and 1621 and wetmix: large output: reliable deliveries.

BENGRI AND SONS, LTD., Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

CLEE HILL TRANSPORT AND ROLLING CO., LTD., Ludlow, Salop. (Tel.: Cleehillstone 284.) Granite tarmac, chippings, filter media, setts, limestone, crushed and walling stone, gravel, sand, hardcore and ashes.

DUNNING AND SON, LTD., Haughmond Quarry, near Shrewsbury. (Tel.: Upton Magna 286/7.) All grades of high-quality roadstone, concrete aggregates and coated macadam. All to B.S.S. Any tonnage available for immediate delivery.

NASH ROCKS STONE AND LIME CO., LTD., Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

OLD RADNOR TRADING CO., LTD., Kingston. (Tel. 11.) (See Herefordshire.)

SALOP SAND AND GRAVEL SUPPLY CO., Admaston, Wellington. (Tel. 961.) Salop.

TERN HILL SAND AND GRAVEL CO., LTD., Alimington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffordshire for details.)

TRENTHAM GRAVEL CO., LTD., Lordsley Quarries, Willoughby Chase, near Market Drayton, Salop. (Tel.: Pipe Gate 304/5.) All sizes crushed or washed gravel, tarmac, chippings, filter media, setts, concrete, sand, plastering sand. Plant capacity: 2,000 tons per day.

SOMERSET

ASHAM QUARRY CO., LTD., Chantry, Frome. (Tel.: Nunney 351.) All sizes limestone block, broken and aggregates. Tarrad and bituminous macadam to B.S. Ex quarry and delivered.

DANGERFIELD, F. J., AND CO., LTD., 216A Finchley Road, London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)

GILSON, S. C., AND SONS, LTD., Holcombe, near Bath. (Tel.: Stratton-on-the-Fosse 243.)

HALL AND CO., LTD., Longmoor House, Ashton Vale Road, Bristol 3. (Tel.: 63001.) Gravel aggregates, concreting, plastering and building sand.

ROADS RECONSTRUCTION (1934), LTD., Stoneleigh House, Frome. (Tel.: Frome 2361.) All sizes limestone, dry and coated, to British Standards. Precast concrete products.

WAINWRIGHT, JOHN, AND CO., LTD., Shepton Mallet. (Tel.: Shepton Mallet 207.) Washed, ballast, coated basalt, concrete aggregates, filtering media, building blocks and slabs.

SOUTH SCOTLAND

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SOUTH WALES

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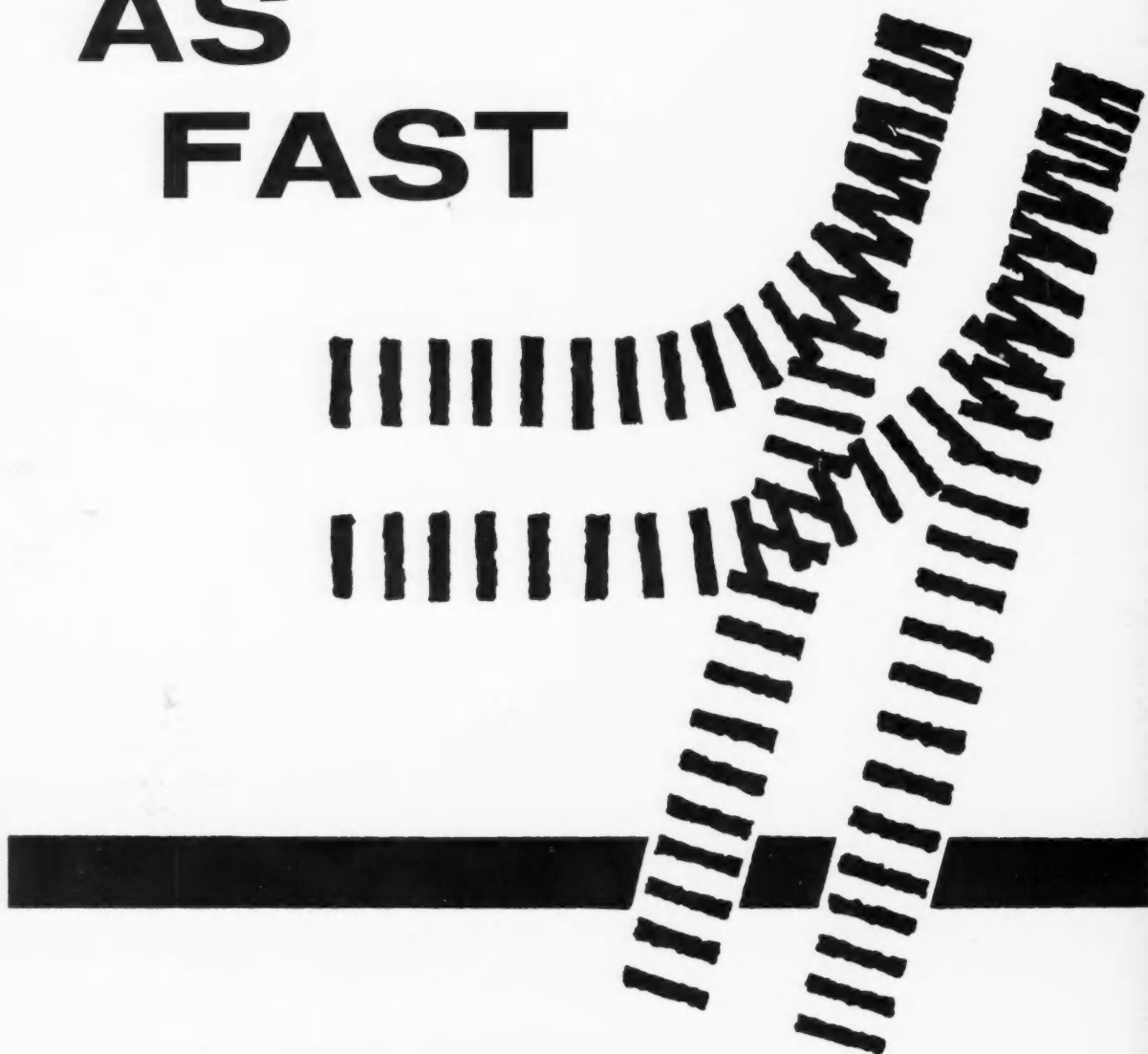


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